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Enterprise Architecture Transition Plan Version 1.0, Volume 1

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EXECUTIVE SUMMARY

The U.S. Department of Housing and Urban Development (HUD) serves a vital role in promoting housing opportunities for our nation's poor and disadvantaged, as well as strengthening our nation's communities. Over the last decade, serving and protecting these communities has proven more challenging. Ten years ago there were approximately 15,000 HUD employees[1]. Today, fewer than 10,000 employees do as much and possibly more to meet HUD's continuing mission. HUD staff are doing an admirable job in an environment with processes forged in the 1960's and 1970's, often supported by systems and applications developed in the 1980's and 1990's.

During the last ten years, changes in the housing and mortgage finance marketplace plus advances in information technology (IT) and electronic business practices have placed greater and greater demands on HUD resources. HUD's mission has outgrown current processes and the systems and applications that support these processes. HUD must find better and smarter ways to operate to continue to serve its citizens in need.

To modernize operations, HUD must first face certain realities. The go-it-alone approach that has served business units in the past is no longer effective. HUD must find new ways to collaborate, share and re-use services and technologies, and eliminate unnecessary duplication. Business lines should look to re-engineer inefficient processes prior to investing in automation. Likewise, the application automation at HUD has not always kept pace with advances in technology, and HUD should seek to fill automation gaps when a positive return on investment can be

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1 *"HUD Ache", http://www.GovExec.com, October 1, 1998*

attained. Finally, HUD must find better ways to ensure the quality, security, and accessibility of its information.

This Enterprise Architecture Transition Plan (EATP) is comprehensive, addressing all of HUD's organizational units and business operations. It prescribes a high-level roadmap for HUD to modernize its operations and computer systems. The transition plan is the result of analysis of:

- Architectural drivers, such as HUD strategic plans and priorities, milestone commitments to the Office of Management and Budget (OMB), and audit/report findings
- HUD Target enterprise architecture (EA) and other EA artifacts
- Improvement opportunities, such as potential opportunities for re-use and sharing of common services, business collaboration, and technology refresh
- Transition/implementation plans and other EA artifacts from across the Federal government

The EATP represents a sequence of "transition activities" across seven phases. The duration of each phase is not predetermined. For the most part, the duration will depend on the level of commitment of stakeholders and the resources obtained to plan and execute each transition activity. There are four categories of modernization steps. They are:

- Overarching Activities - activities associated with fostering IT modernization through broad policy, governance, and infrastructure efforts
- Line of Business (LOB) Segments - activities associated with developing and implementing a detailed architecture for an LOB (e.g. Multi-Family Housing Finance)
- Business Function Segments - activities associated with developing and implementing a detailed architecture for a business function (e.g. Grants Management)
- Core IT Services - activities associated with identifying, selecting, planning for, and implementing IT services (e.g. Electronic Document and Records Management) that can be shared across HUD's LOBs and business functions

Each transition activity within this plan is defined at a high level and typically represents a sustained and complex effort. Each transition activity is unique; however, each of the four categories of transition activities will typically follow a similar pattern of work activities and result in a similar set of work products.

The LOB segments, Business Function segments, and Core IT Services begin with an architecture phase that first focuses on business transformation, then defines how information and enabling IT can support the transformation. After receiving funding through an investment phase, these segments or Core IT Services are implemented. Implementation may include business-focused activities, such as business process reengineering, as well as IT-focused activities, such as steps encompassed in HUD's systems development methodology (SDM).

The Overarching Activities are fundamentally different from the LOBs, Business Functions, and Core IT Services. They are also all unique and do not follow a common pattern. These activities typically begin with the development of strategy, policy, or governance, then move into execution.

The proposed sequence of transition activities was selected through an evaluation of the activities against objective criteria for prioritization, as well as consideration of dependencies. The prioritization criteria include the following factors:

- Business transformation impact
- Financial impact
- Impact on execution of other high-priority transition activities (i.e. pre-requisite)
- Resource availability
- Opportunities for early successes
- Ability to leverage or build on work in progress

The EATP is applicable to all HUD organizations. HUD executives, managers, and staff are encouraged to read, discuss, and comment on this document. While the plan represents a complex and intensive

modernization effort, it can be accomplished by parsing the overall plan into manageable increments.

HUD has already demonstrated considerable success to build on. In the last two years, HUD's program and administrative areas initiated modernizations of the following areas: Single Family Housing, Multi-Family Housing Finance, Financial Management, Human Resources Management, Rental Housing Assistance, and Grants Management.

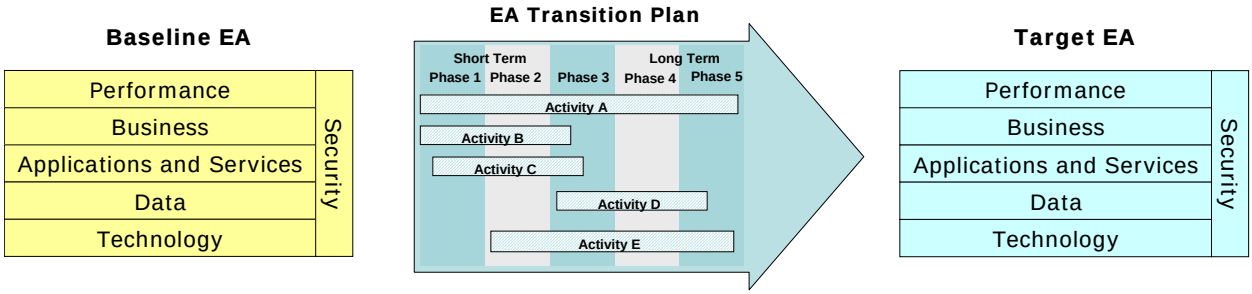
As HUD continues to move forward, it must commit resources to modernization. There will be many decision points along the way and the EATP will serve as a guide. The first steps will likely be the most challenging, as HUD establishes new ways to examine and manage its operations and supporting computer systems. To succeed, HUD must engage in proven management practices, in an effort to crystallize and achieve its IT modernization objectives.

1 INTRODUCTION

1.1 DEFINITION AND PURPOSE

The Enterprise Architecture Transition Plan (EATP) for the Department of Housing and Urban Development (HUD) is a high-level strategic roadmap for information technology (IT) modernization. It is a plan for moving toward the Target Enterprise Architecture (EA), which defines the desired future state of HUD's performance goals, business, applications and services, technology, data, and security. A simple conceptual representation is provided in Exhibit 1-1 below.

Exhibit 1-1 – EA Transition Plan Conceptual Representation



The primary purpose of the EATP is to define and sequence the activities needed to transition to the desired future state ("Transition Activities"), in light of priorities, dependencies, and constraints. It is the foundation for IT modernization, driving both investment in and implementation of systems and technologies that will transform HUD's business. The transition activities defined within this plan will become the programs HUD executes to achieve IT modernization. This plan defines and sequences transition activities within four categories:

- **Overarching Activities** – These activities are associated with fostering IT modernization through broad policy, governance, and infrastructure efforts. These were identified based on an assessment of HUD's current IT management policies, practices, governance, and infrastructure. This informal assessment was based primarily on document reviews and discussions with OCIO staff.

- **Line of Business (LOB) Segments** – These activities are associated with developing and implementing a detailed

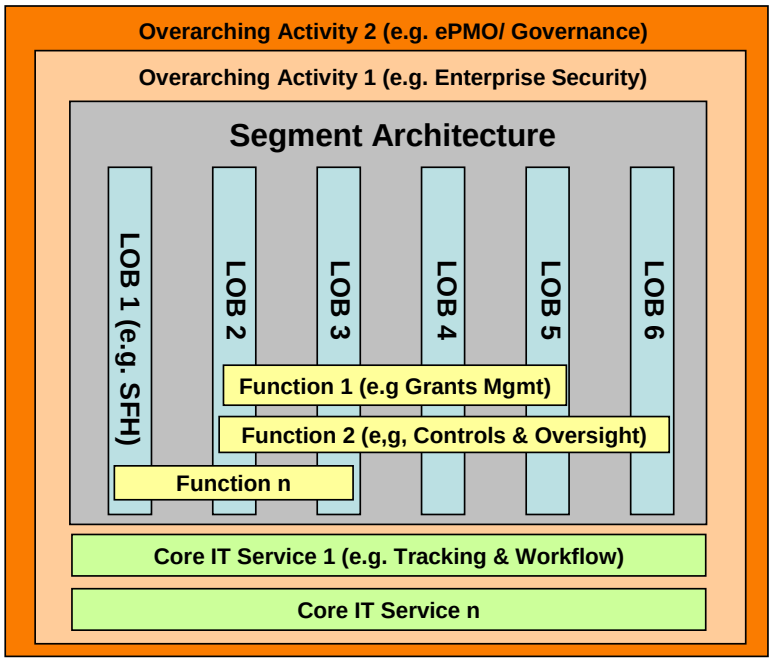
architecture for a LOB (e.g. Multi-Family Housing Finance). An LOB represents a ***strategic view*** of HUD's business (i.e., why HUD exists). The six LOBs addressed in this EATP were identified in HUD's Target EA Business Reference Model (BRM).

- **Business Function Segments** – These activities are associated with developing and implementing a detailed architecture for a business function (e.g. Grants Management). A business function represents a ***tactical view*** of HUD's business (i.e. how HUD delivers its goods and services). The 20 business functions addressed in this EATP were identified in HUD's Target EA Business Reference Model (BRM).

- **Core IT Services** – These activities are associated with identifying, selecting, planning for, and implementing IT services (e.g. Electronic Document and Records Management) that can be shared across HUD's LOBs and business functions. The Core IT Services were identified by reviewing the Target EA Service Component Reference Model (SRM) and the Common Requirements Vision (CRV) and bundling together logically-related groups of services with potential to be shared across HUD.

The relationships between these four types of transition activities are reflected in Exhibit 1-2 below.

Exhibit 1-2 – EATP Transition Activity Relationships



As the exhibit shows, LOBs can be seen as vertical views of HUD's business operations, while business functions cut horizontally across one or more LOBs. Core IT services support the business and typically span the enterprise. Overarching activities are foundational enablers of the other transition activities.

1.2 BENEFITS

HUD has over 200 information systems, executes overlapping business and information management processes, and relies on varying technologies that are expensive to maintain. To reduce cost and streamline operations, HUD has adopted a service-oriented and component-based approach to architecture. This approach, consistent with government and industry best practice, enables HUD to "build once, use often." This EATP sets the course for realizing this vision. The benefits of the EATP and Target EA are:

- **Improved Program Performance** – The overarching benefit of the Target EA and EATP is that they provide opportunities to improve the efficiency and effectiveness of HUD's programs. They ensure that business functions support strategic goals and priorities, data is optimized in support of the business, and

applications and technology solutions are driven by business needs. They also allow HUD to more readily share services across organizational and functional lines.

- **Improved IT Resource Planning and Allocation** – HUD's IT modernization efforts inherently involve trade-offs among many competing ideas and interests. Traditionally, projects and initiatives have been funded based on their individual merits, with little consideration of the needs and priorities of the Department as a whole. For the first time with this EATP, HUD has a single plan that encompasses all of the activities needed to achieve the IT modernization vision. Moreover, the plan sequences these activities based on priorities, dependencies, and constraints (e.g. available resources).

- **Reduced IT Diversity and Complexity** – The Target EA and EATP simplify HUD's IT environment by promoting standards and the sharing and reuse of common technologies.

- **Improved Interoperability -** The Target EA and EATP drive HUD toward enterprise-wide standards that promote platform and vendor independence, enabling greater interoperability across disparate applications, both internal and external.

- **Improved Utilization of Resources**– The Target EA and EATP reduce system development and operation and maintenance costs by eliminating duplicative investments, promoting sharing of common services, and establishing Department-wide standards.

- **Accelerated System Implementation** – The Target EA and EATP equip the Department's system developers and architects with a pallet of component-based services from which to choose that provide well defined functionality, thus maximizing reuse and portability of previously developed processes, components, code, etc.

1.3 INTENDED AUDIENCE AND USE

The EATP is applicable to all HUD organizations, as it represents a proposed roadmap for reaching the desired future state of HUD's performance goals, business, applications and services, technology, data, and security. HUD executives, managers, and staff are encouraged to read, discuss, and comment on this document.

This version of the EATP is intended as a discussion draft for the Department. Business leaders across HUD should think and talk about the transition activities, to determine whether the proposed priorities and sequencing of activities are the best choices for the Department and are attainable with available resources. After stakeholders across HUD have reviewed this version of the EATP and provided comments, it will be revised and put forward to the Technology Investment Board Executive Committee (TIBEC) for adoption.

The EATP is a roadmap – a description of a range of activities to support business transformation and IT modernization throughout the Department, with a sequencing plan for undertaking these activities. The EATP is not an all-in-one action plan for IT modernization to be used in isolation. It identifies, at a high level, the core transition activities HUD will undertake, but is not a substitute for the many other aspects of planning required for such a complex undertaking. Once adopted, the EATP can be used in conjunction with other planning processes to enable business transformation and IT modernization. For example, transition activities will still need to be selected and funded through the budget process. Selection of HUD staff to participate in work groups and IPTs will still need to be accomplished through workforce planning processes. Planning for and selection of contractor support will still occur through the procurement process.

The EATP defines and sequences a broad range of transition activities ranging from strategic, overarching activities (e.g. establishing Department-wide governance) to activities that are specific to a single line of business (LOB) or business function. Therefore, individual readers may find that selective reading of certain sections and appendices is more useful than an end-to-end review. The primary use of this plan for specific HUD stakeholder groups is summarized below:

- **Program Area Executives**– As the key decision-makers within HUD responsible for ensuring that the Department fulfills its mission and progresses toward its vision, HUD executives must understand and support the path toward IT modernization and participate in efforts to execute it. In particular, the Technology Investment Board Executive Committee (TIBEC) has responsibility for:
  - Approving the EATP
  - Structuring the IT investment portfolio to support IT modernization in line with the EATP

  - Helping to drive the cultural change, within their program areas and across the Department, that is required to execute the EATP

- **Chief Information Officer (CIO)** – The HUD CIO plays a unique and important role in executing the EATP. The CIO must advocate, both within HUD and externally, for the resources required to carry out the plan and must educate stakeholders on the value of IT modernization.

- **IT Staff** – All HUD IT staff, including both Office of the Chief Information Officer (OCIO) and program area IT staff, should be familiar with the EATP. As the staff with primary responsibility for planning and deploying systems and technology in support of the Department's business, IT staff need to understand the IT modernization vision and the plan for achieving it. Key subsets of HUD's IT staff for whom the EATP has particular relevance include:

  - **IT Investment Management (ITIM) Staff** – The ITIM staff must understand the EATP and be able to apply that understanding in the evaluation of HUD's IT investment portfolio.

  - **Program/Project Managers** – Program and project managers responsible for IT initiatives must ensure that the initiatives comply with the Target EA and EATP. Specific criteria for compliance are developed and published in conjunction with the Department's ITIM guidance.

- **Business Managers** – Managers supporting HUD's LOBs and business functions should understand how the EATP will support their business needs. They should closely review the sections of the document that address their LOBs and business functions, as well as the services and technologies that will support them.

- **Integrated Program Teams (IPTs)** – IPTs, consisting of both business and IT staff from across the Department, will be the core units responsible for executing many of the transition activities in this plan. As an IPT forms around a specific transition activity, the EATP serves as a frame of reference for the activity's scope and focus, and identifies an initial set of opportunities that the IPT should explore further.

- **The Office of Management and Budget (OMB)** – As part of the budget submission process, HUD will submit this EATP and other EA work products to OMB. OMB will use the EATP to determine

whether HUD has a cohesive plan for modernizing IT in support of its business, and whether individual IT initiatives are aligned with that plan. All initiatives must be aligned with EA in order to receive funding. OMB will also use HUD's Target EA and EATP to identify opportunities for HUD to participate in government-wide initiatives.

- **Other Peer Agencies –** HUD collaborates with other Federal agencies, such as the Department of Health and Human Services, the Social Security Administration, and the Internal Revenue Service, in the implementation of its programs. The EATP, in conjunction with the Target EA, will help these partnering entities understand HUD's plans for IT modernization in support of its business.

1.4 BACKGROUND

The Clinger-Cohen Act of 1996 mandates the implementation of an effective EA policy and an associated EA practice. This act requires Federal Agency CIOs to develop, maintain, and facilitate "a sound and integrated information technology layer for the executive agency." Subsequently, OMB, in its Circular A-130, issued explicit guidance that requires agency information system initiatives to be consistent with the Agency's EA.

While the development and maintenance of an EA is mandated by OMB, HUD approaches EA as a tool for business transformation and IT modernization. Since the passage of these mandates, HUD has steadily built an active EA practice to meet the business needs of the Department. This EATP builds on prior work and advances upon recent efforts to move HUD toward IT modernization, including:

- **IT Strategic Plan (ITSP)** – The ITSP defines HUD's IT vision, mission, values, goals, objectives, and performance measures, explicitly defining the central role HUD's IT plays in advancing the Department's mission.

- **Target EA –** The Target EA is a living framework that defines the desired future state of HUD's performance goals, business, applications and services, technology, data, and security. The Target EA is the "destination" for the EATP.

- **Strategic Portfolio Review (SPR), FY 2005-2006 Portfolio** – The SPR contains strategic recommendations and initiative-specific guidance designed to advance the IT portfolio toward the Target EA

and improve investment decisions at the enterprise level. The SPR was an input to this EATP, as it began the process of establishing priorities for modernization.

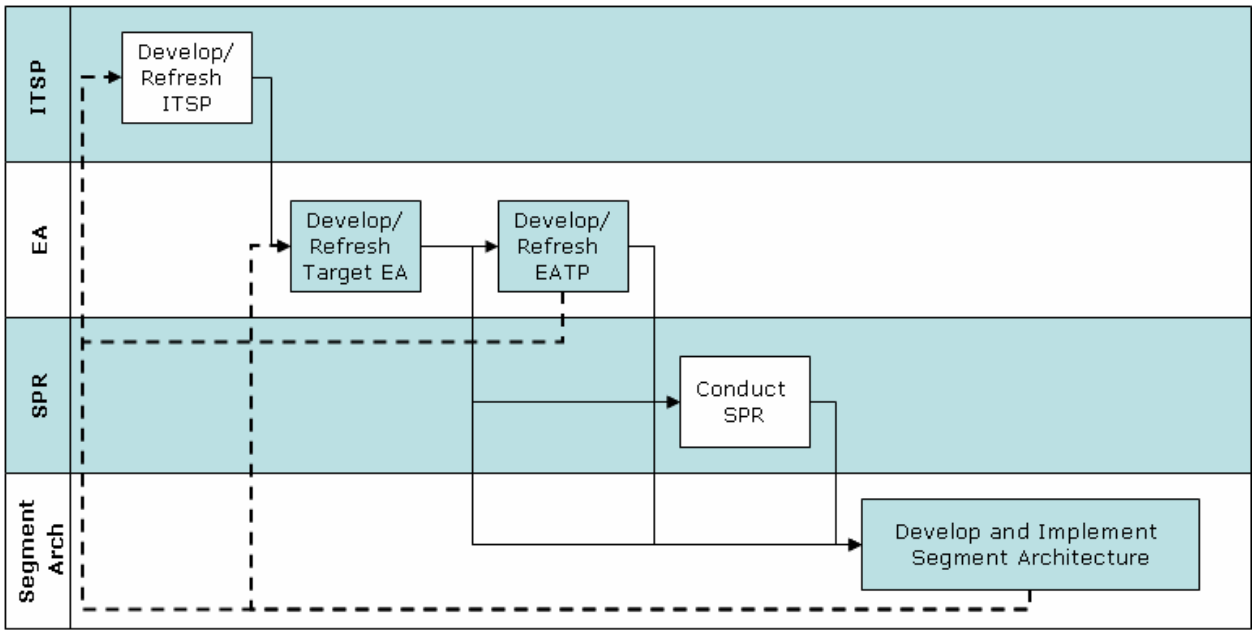
- **Segment Architecture(s) –** Over the last several years, HUD has started to advance its architecture through definition of several architectural "segments." In order to parcel detailed architectural efforts into attainable pieces, HUD has focused on defining architectures for individual LOBs (e.g. Multi Family Housing Finance) and business functions (e.g. Grants Management). These segment architectures are represented as transition activities within this EATP.

The desired relationships among these efforts are depicted in Exhibit 1-3 below. As the dashed lines and arrows show, the pattern is cyclical and iterative. The sequence encompasses the following relationships, moving from left to right through the graphic:

- The ITSP provides the strategic direction for development of the Target EA.
- The Target EA defines the desired future state for HUD. In addition to being the primary input to the EATP, the Target EA is also an important input to both the SPR and Segment Architecture efforts.
- The EATP is developed to define the path forward toward achieving the Target EA. It directly feeds the SPR, providing the direction in which HUD will move the IT portfolio. It also defines the priorities and sequence for developing and implementing Segment Architectures.
- The SPR then evaluates initiatives and makes recommendations to align initiatives with the Target EA and EATP, and to drive initiative participation in Segment Architecture efforts.
- Finally, Segment Architectures are developed and implemented to operationalized the architecture.
- The dashed lines represent a number of feedback loops in the pattern, indicating its cyclical nature. The EATP flows back to the ITSP to ensure that, as the ITSP is revised, IT strategies build on the direction defined in the EATP. Likewise, as Segment Architectures are developed and implemented, HUD will re-evaluate and update the ITSP and Target EA as appropriate.

Note that in FY 2005, several steps were accomplished out of sequence, due to resource constraints.

Exhibit 1-3 – EATP and Related Planning Efforts



1.5 SCOPE

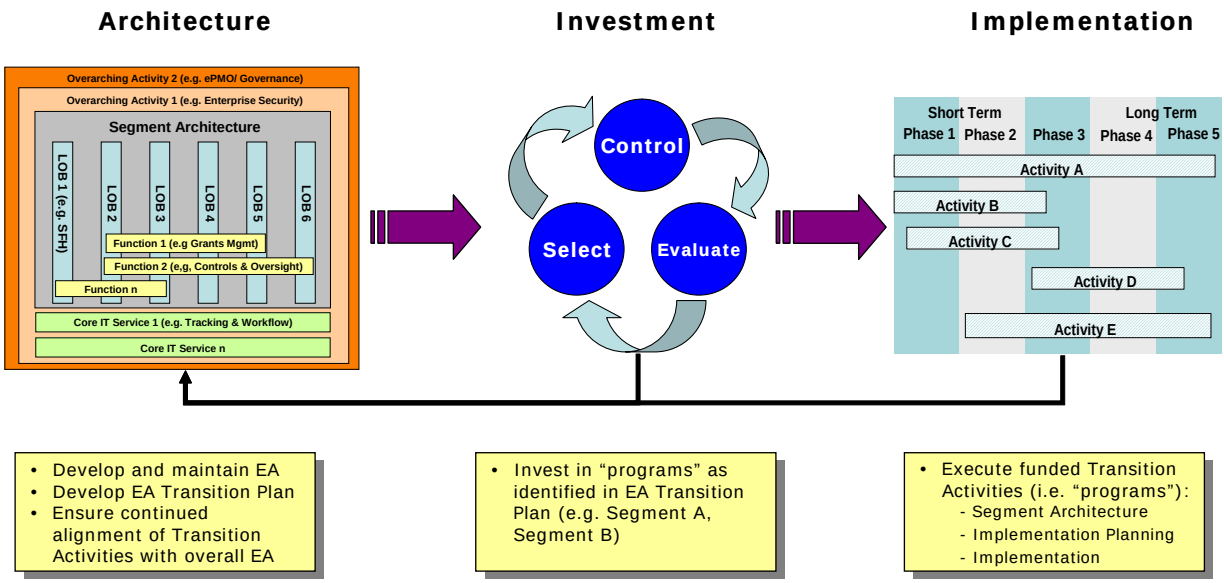
The organizational scope of the EATP Version 1.0 is the entire HUD enterprise. It represents a path toward IT modernization for the Department and touches all of HUD's offices, LOBs, business functions, and supporting services and technologies. It is driven by HUD's IT Strategic Plan and therefore fully supports and aligns with HUD's mission, vision, goals, and objectives.

The EATP identifies and sequences transition activities at the strategic level. It is not a detailed project plan and does not encompass a work breakdown structure for all of the operational activities required to realize the desired future state. Detailed implementation planning for individual transition activities (e.g. LOB or business function segment architectures, etc.) is the responsibility of the teams tasked with executing those portions of the plan.

1.6 RELATIONSHIP WITH IT LIFECYCLE FRAMEWORK

This EATP plays an important role within a broader framework for managing IT within HUD. HUD has defined an IT Lifecycle Framework consisting of three key phases: Architecture, Investment, and Implementation. Exhibit 1-4 below depicts this conceptual framework and shows how the EATP fits within it.

Exhibit 1-4 – Role of EATP in IT Lifecycle Framework



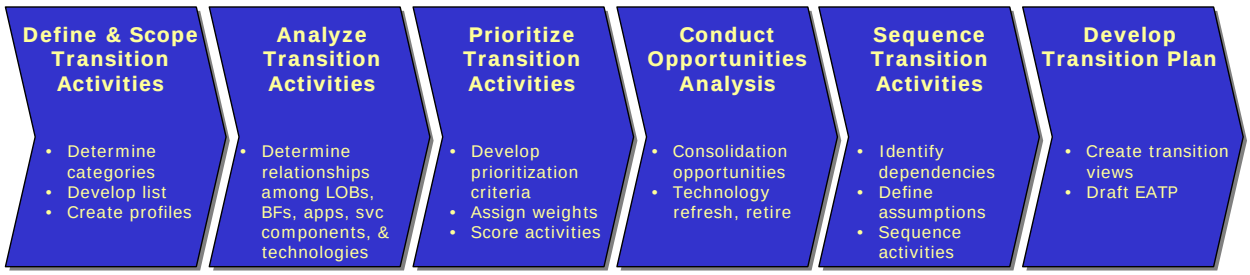
The primary theme throughout the IT Lifecycle Framework is that architecture (Target EA, EATP) drives all IT investment, which in turn enables implementation. However, as the graphic depicts, the relationship between Architecture, Investment, and Implementation is cyclical rather than linear. The Target EA and EATP are continuously maintained. As segment architectures and other transition activities are executed in the implementation phase, they are reviewed for alignment with the Target EA, which may adapt and be updated accordingly.

1.7 METHODOLOGY

This EATP was developed through a logical sequence of steps focused on identifying, prioritizing, and sequencing the transition activities that will be necessary to achieve HUD's Target EA. This methodology is depicted graphically in Exhibit 1-5 and summarized below. Note that while the development of the EATP largely flowed sequentially as depicted below,

there was some iteration between steps. For example, the opportunities analysis in some cases led to a revision of the prioritization of activities.

Exhibit 1-5 – EATP Development Methodology



Define and Scope Transition Activities – Developing the EATP began with defining the "universe" of activities that would have to be undertaken to transition to the Target EA. As described in Section 1.1 above, transition activities were grouped into four categories: LOB Segments, Business Function Segments, Core IT Services, and Overarching Activities. LOB and Business Function Segments are already defined within the Target EA Business Reference Model (BRM). A set of Core IT Services was derived from the Target EA Service Component Reference Model (SRM) and the Common Requirements Vision (CRV). Finally, a set of enabling governance, policy, and infrastructure activities were defined to lay the foundation for progressing through the other transition activities. These activities were identified based on an assessment and gap analysis of HUD's current IT management policies, practices, governance, and infrastructure.

Profiles were created for each transition activity to assist in scoping the activities and to capture a common set of information for each, including a description, sponsors, status, and other data. The complete set of Transition Activity Profiles can be found in Volume 2 - Appendix A. In some cases, not all profile data is known, so the profiles should be maintained and updated over time by the EA Practice, in conjunction with the IPTs or work groups responsible for carrying them out.

Analyze Transition Activities – Expanding on analysis conducted during development of the Target EA, key relationships among and within the transition activities were examined, including:

- Target LOB vs. Target Business Function

- Target LOB vs. Current IT Initiative
- Current IT Initiative vs. Current Application
- Current Application vs. Target LOB
- Current Application vs. Target Business Function
- Current Application vs. Target SRM Service Component
- Current Application vs. Target Technical Reference Model (TRM) service specification and product

This analysis was necessary to prioritize and sequence transition activities, and as an input to the opportunities analysis discussed below.

Prioritize Transition Activities – Prior to determining an appropriate sequence for executing the transition activities, the activities were prioritized based on potential business impact, resource availability, and other criteria (See Volume 3 - Appendix B for the Transition Activity Score Sheets). For each of the four categories of activities, a set of criteria was developed and weighted. Each activity was then scored, resulting in a rank ordered list of activities within each category. Note that this prioritization provides a starting point for the sequencing and is one input to the sequencing of the activities as discussed below.

Conduct Opportunities Analysis – HUD's EA principles identified in the Target EA were the framework for conducting a limited opportunities analysis within select transition activities. This analysis sought to identify some initial potential "quick wins" that should be further explored by the Integrated Program Teams (IPTs) responsible for executing a particular transition activity. Examples of potential opportunities include sharing and re-use of common service components, consolidation of duplicative applications and initiatives, and refresh or replacement of non-standard technologies.

Sequence Transition Activities – Based on the analysis of relationships among transition activities, dependencies and "clusters" of activities were identified that should logically be conducted in sequence or in parallel. Combining this information with the prioritization and opportunities analysis resulted in an overall sequence of the transition activities. The final step in sequencing the activities was to consider resource availability and make assumptions about the extent to which multiple activities could be performed in parallel. Note that in this iteration of the EATP, there are

significant unknowns in terms of both the resources available to execute the transition activities and the resources required. For example, it would be very difficult to project the cost and timeframe required for both architecting and implementing a LOB segment that has not yet been clearly scoped.

Develop Transition Plan – Finally, the overall EATP was drafted, incorporating all of the elements previously discussed, and adding more detailed consideration of strategic transition issues, risks and mitigation factors, and next steps.

The process of developing the EATP is not complete. The current version is intended as a discussion draft for the Department. Much work is yet to be done before finalizing and executing the plan. The following activities are recommended to ensure that the plan reflects the interests and needs of the Department:

- **Provide EATP Introductory Briefings to Key Stakeholders** – The EA Practice will brief the CIO and Technology Investment Board Working Group (TIBWG).

- **Disseminate EATP for Department-wide Review** – The EA Practice will distribute the EATP through the TIBWG. The TIBWG representatives should share the EATP widely throughout their organizations to ensure that key business and IT stakeholders have an opportunity to shape and improve the quality of the plan. The EA Practice will set a deadline for comments, so TIBWG members should actively ensure that their program areas provide comments by the deadline.

- **Consolidate Comments and Refine EATP** – The EA Practice will consolidate and resolve comments, following up with stakeholders as needed to ensure that the EATP best represents the needs and priorities of the Department.

- **Approve EATP** – The EA Practice will submit the refined EATP for approval by the TIBEC, with preliminary review and approval by the TIBWG and Senior Review Board (SRB), as appropriate. Once approved, the EATP will be the Department's primary roadmap for IT modernization, driving both investment and implementation.

2 TRANSITION PLAN AND SEQUENCING VIEWS

The EATP provides the details of the transition activities and the proposed sequence in which they should be addressed. This section focuses on the proposed sequencing of the transition activities by presenting a series of views: EATP Overview; Overarching Activities View; Line of Business and Business Function View; and Core IT Service View. Each view will be discussed below. Each of the transition activities represented in the following graphics are summarized in Section 3 and detailed in the activity profiles in Volume 2 - Appendix A. The proposed sequencing across the phases was determined based on priorities, dependencies and constraints, which are addressed for each transition activity in Volume 3 - Appendix B.

Each transition activity within this plan is defined at a high level and typically represents a sustained and complex effort. Each transition activity is unique; however, each category of transition activities will typically follow a similar pattern of work activities and result in a similar set of work products. Each of the four categories is discussed briefly below:

Line of Business (LOB) Segments
At the highest level, an LOB segment consists of an architecture / planning phase and an implementation phase. The architecture phase begins with a focus on business transformation. An Integrated Program Team (IPT) with business and systems experts from participating program areas analyzes the existing business model and processes that support the delivery of HUD services within the given LOB. This analysis results in a **Business Profile** that details how HUD can most effectively and efficiently provide these business services in the future. The Business Profile encompasses statements of vision and mission for the LOB, descriptions of the business services provided, business success/performance measures, process workflows and information flows, a concept of operations (CONOPS), and business rules.

Once the foundation of business transformation has been set, the LOB segment effort shifts its focus toward defining how information and enabling IT can support the transformation. The **Architectural Profile** defines a set of reference models (performance, business, service component, data, and technology) and the inter-relationships among them. This ensures that the LOB segment is properly aligned within the broader Departmental EA framework. Once the alignment has been established, a **System Profile** is created to detail the enabling IT that

will support the business. Business and system experts will consider alternative solutions and determine how best to employ information and automation to effectively serve customers. The last major work product in the architecture phase is the **Implementation Plan**, which defines the path toward attainment of the desired segment architecture.

At the end of the architecture phase, HUD creates a business case, typically in the form of an OMB Exhibit 300, to obtain funding for the implementation of the architecture. The work products discussed above provide the input to the development of the business case. Once funding has been obtained, HUD initiates implementation. The specific activities undertaken during implementation will vary considerably depending on the nature of the architecture. If significant business transformation is desired, HUD may execute a business process reengineering effort. In most cases, there will be activities that fall within HUD's System Development Methodology (SDM), such as acquisition, requirements definition, and systems design and development.

Business Function Segments

The business function segments consist of the same two major phases as LOB segments, an architecture / planning phase and an implementation phase. Likewise, the primary work products and sequence of activities is the same. The only significant difference is the focus and scope. For example, a business function segment focuses more deeply on a narrower set of business activities, while an LOB segment looks at how multiple functions will be integrated to deliver a particular set of services. This relationship is discussed in more detail in Sections 2.1.2 and 2.2.2.

Core IT Services

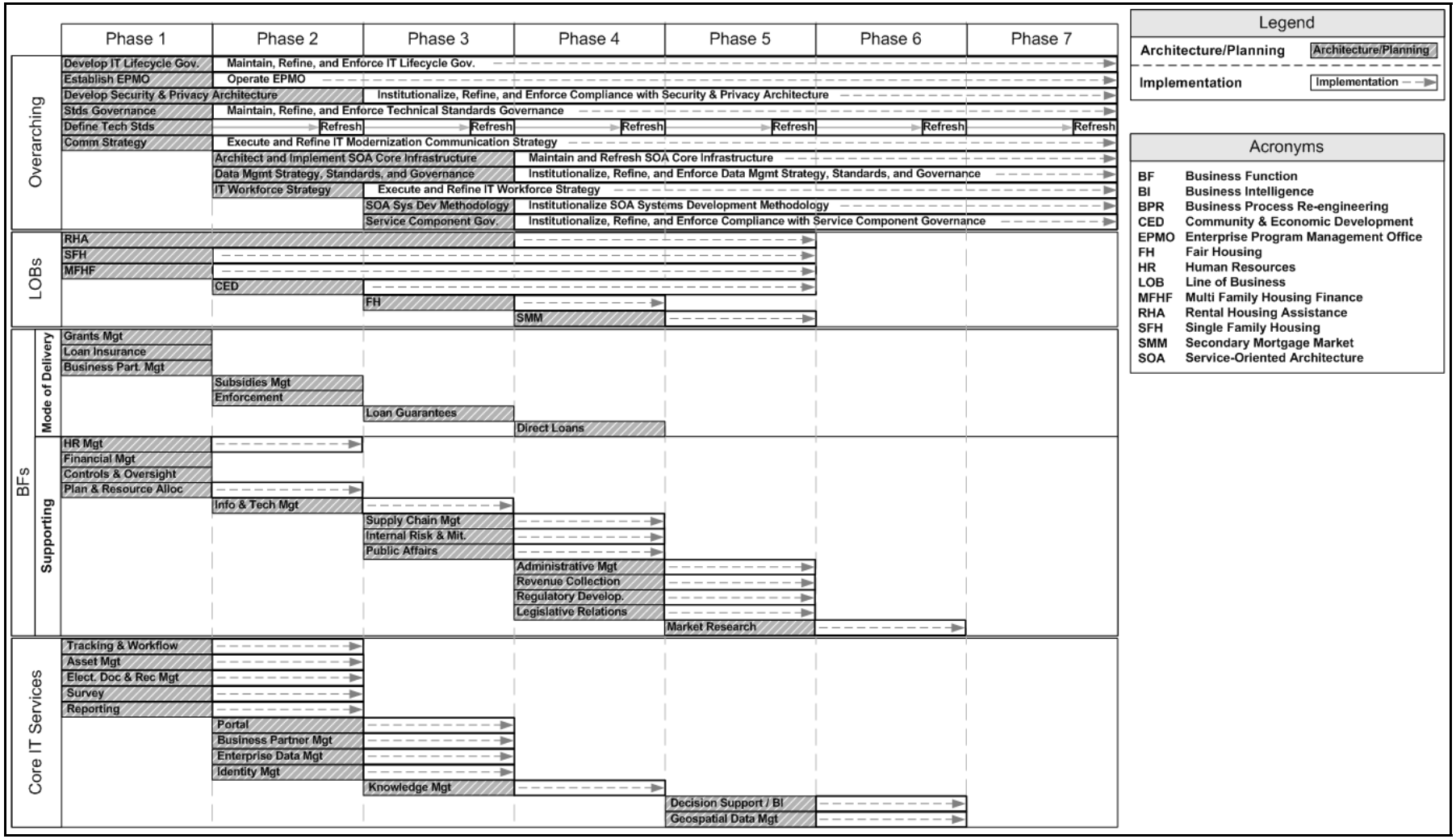
The Core IT Services also consist of an architecture / planning phase and an implementation phase. However, unlike the LOB and Business Function segments, the work products produced during the architecture / planning phase for Core IT Services may vary considerably depending on the nature of the service. For example, in cases where the application of the IT service is different depending on the business process being supported (e,g, Tracking and Workflow), the architecture may heavily explore business rules and requirements. On the other hand, an IT service that is applied fairly consistently regardless of the business process being supported (e.g. Reporting) may simply require an analysis and selection of appropriate Commercial Off-The-Shelf (COTS) solution(s) that align with HUD's Target EA. As with LOB and Business Function segments, the implementation phase typically encompasses activities that fall within HUD's SDM.

Overarching Activities
The Overarching Activities, which encompass policy, governance, and infrastructure efforts, are substantially different in their execution from the three other categories of activities. Moreover, each of the Overarching Activities is distinct, and they do not all follow a similar pattern. In the views provided later in this section, they are all represented graphically as having an architecture / planning phase and an implementation phase. However, the nature of the two phases differs considerably for each activity. For example, for the IT Lifecycle Governance activity, the first phase is the development of the governance, and the second phase is the maintenance, refinement and enforcement of the governance. On the other hand, for the IT Workforce Strategy, the first phase is the development of the strategy, and the second phase is the execution of the strategy.

2.1 TRANSITION PLAN OVERVIEW

The overview, as illustrated in Exhibit 2-1, shows the high-level view of all 49 activities addressed in this EATP. The overview binds the transition activities within their appropriate category (the vertical axis, i.e. “swim lane”), and phase (the horizontal axis).

Exhibit 2-1 – EA Transition Plan Overview



2.1.1 Transition Activity Categories

The Transition Plan Overview segregates transition activities into five categories: Overarching; Lines of Business; Mode of Delivery Business Functions; Supporting Business Functions; and Core IT Services. Each category is represented by a bordered box or "swim lane" and contains the appropriate transition activities within the swim lane. The swim lanes intersect with the phases (described in the next section) to illustrate the activity status (e.g. architecture, implementation) across the phases. Later in this section, detailed views of each category are presented and discussed.

Overarching: Overarching transition activities represent the infrastructure, policy, and governance necessary to support and execute IT modernization. These activities occur independently of other categories, however they do have dependencies in and among them (e.g. Define Technical Standards relies on Standards Governance). This EATP identifies 11 overarching transition activities.

Line of Business: The Lines of Business category represents the six HUD LOBs. Each LOB develops and implements segment architecture ("blueprint") specific to its business. HUD's LOBs represent a ***strategic view*** of HUD's business (i.e. why HUD exists). Each LOB provides a unique set of business services to customers and plays a unique role in fulfillment of HUD's mission. LOBs provide business services to customers either directly or through a partner. In order to provide business services, LOBs carry out a set of business functions.

Business Function: The business functions constitute a ***tactical view*** of HUD's business (i.e. how HUD delivers its goods and services). The 20 business functions are divided into Mode of Delivery and Supporting sub-categories to differentiate the unique implementation strategies between them. Mode of Delivery business functions (e.g. Grants Management) are functions that most directly enable the mission of the LOBs. Thus, these functions have unique implementations within each LOB. The Supporting business functions sub-category encompasses functions in the "Support Delivery of Services" and "Management of Government Resources" business areas of HUD's Target EA business reference model (BRM). These functions (e.g. Human Resource Management) are not specific to HUD, but are common to many other government agencies and businesses. They support all LOBs and are typically implemented independently of LOBs (exceptions are noted in Section 2.2.2 below).

Core IT Service: The 12 Core IT Services encompass the activities associated with identifying, selecting, planning for, and implementing IT services that can be shared across HUD's LOBs and business functions. These services are complementary to LOB and Business Function implementation. Therefore, these transition activities are sequenced to support related efforts within LOBs and business functions.

2.1.2 Relationships Among Line of Business, Business Function and Core IT Service Transition Activities

In order to understand the EATP views, it is important to understand the inter-relationships among LOBs, business functions and Core IT Services. While they appear as discrete parallel activities in the overview graphic in Exhibit 2-1, they are actually inextricably related. These relationships are explored more explicitly in Section 2.3.2 below, but are summarized briefly here.

The LOB to Business Function Relationship

A single LOB is typically supported by multiple business functions. Likewise, a single function is typically performed in support of more than one LOB. The Mode of Delivery business functions are uniquely related to individual LOBs, whereas the Supporting functions are performed in support of the Department as a whole. In other words, a Mode of Delivery function such as Grants Management may be performed one way within the Rental Housing Assistance LOB and a somewhat different way within the Community and Economic Development LOB. On the other hand, a Supporting business function, such as HR Management, is a Department-wide function that is not performed uniquely within different LOBs.

Therefore, in thinking about the transition activities in terms of both blueprint and implementation phases, the implementation phase for Supporting functions is treated differently from that of Mode of Delivery functions. In the case of the former, a single implementation of the business and automation solutions can be performed for the Department. In contrast, Mode of Delivery functions require unique implementations within each of the impacted LOBs to allow for differences in business processes and business rules. Exhibit 2-1 illustrates this concept by showing that the Mode of Delivery business functions do not have an implementation phase reflected in the business function swim lane, while the Supporting functions do. The implementation of the Mode of Delivery functions in the LOBs is detailed in Section 2.2.2 below.

The Core IT Service to Business Function and LOB Relationship

Core IT Services are enterprise-wide in nature and are intended to be shared across HUD's LOBs and business functions. A single core IT service (e.g. Tracking and Workflow) will be both architected and implemented by a central IPT with representation from impacted LOBs and business functions. The architecture/ plans will need to have the flexibility to address the unique processes and business rules of the supported LOBs and functions.

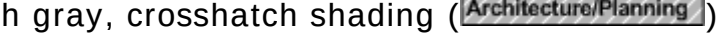
Because certain Core IT Services are more closely related to particular business functions and LOBs than others, HUD may be able to embed some Core IT Services within the LOB and business function segments. This would have the benefit of an existing funding source for the effort. However, because there are no clear exclusive relationships between a single core IT service and a single LOB or function, the going assumption in this version of the EATP is that the Core IT Services will be planned and implemented in separate enterprise-wide efforts, and coordinated with the impacted LOBs and business functions.

2.1.3 Transition Phases

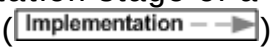
The Transition Plan views incorporate "phases" to demonstrate the sequence and priority of transition activities across a conceptual timeline. The phases represent significant business transformation and IT modernization milestones. The views illustrate time (the horizontal axis) in terms of phases of progress rather than dimensions of time (e.g. months or years). The duration of IT modernization efforts is largely dependent on internal and external resource constraints and investment planning activities. Because the majority of the transition activities are defined at a conceptual level, there is insufficient detail available to make accurate estimations of resource and time requirements to complete these activities. As IPTs form to initiate the transition activities, their scoping and planning efforts will bring greater clarity on resource and time requirements, and the EATP will be updated to reflect this.

2.1.4 Explanation of Legend

The views of the Transition Plan provide a legend to explain the shading and symbols used within each of the transition activity objects. Each characteristic is explained in more detail below:

Architecture/Planning: Transition activities require segment architecture blueprinting and/or planning processes prior to investment and implementation. The architecture aspect of a transition activity is symbolized with gray, crosshatch shading (

).

Implementation: The implementation stage of a transition activity is identified as a solid, white block (

) in the EATP Overview (Exhibit 2-1), Overarching Activity View (Exhibit 2-2) and Core IT Service View (Exhibit 2-5). The LOB and Business Function View (Exhibit 2-3) uses solid colors (black, gray, and white) to designate impact within the implementation blocks for certain transition activities, as described under "*Impact*" below.

Impact: The business functions implemented within LOBs have varying levels of relevance and impact within each LOB. For example, while the Grants Management function is central to the Community and Economic Development LOB, it plays only an ancillary role in the Single Family Housing LOB. The level of impact and relevance is an important factor in how the functions are sequenced for implementation within the LOBs, as depicted in Exhibit 2-3 below. The following symbols and shading scheme are used to delineate impact:

- Primary/high (H in black shading)
- Secondary/medium (M in gray shading)
- Ancillary/low (L in white shading)

2.1.5 Cyclical Nature of Transition Activities

The Target EA and EATP will evolve in iterative cycles. For each of the LOBs, business functions and Core IT Services identified in the EATP Version 1, the focus of the views and discussion is on the first cycle of architecture, investment and implementation for each. Beyond the initial cycle, transition activities will continue to evolve gradually over time. Compared to the initial architecture-investment-implementation cycle, the maintenance and refresh over time should be significantly less resource intensive.

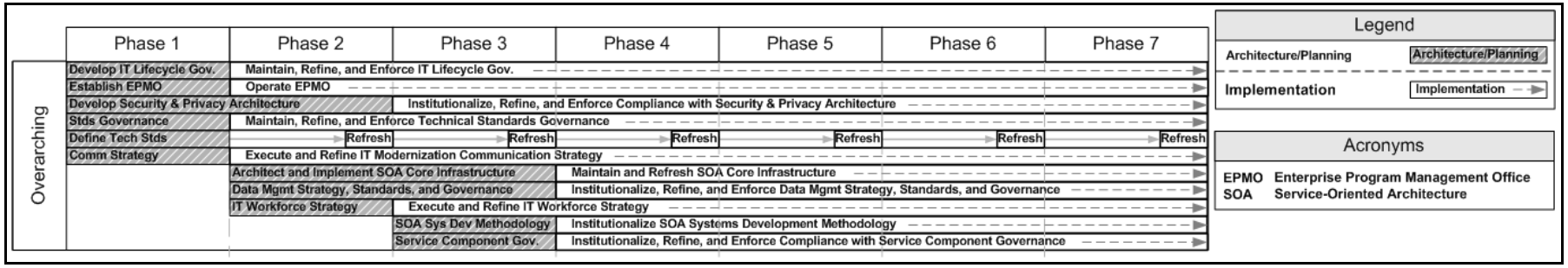
2.2 PLAN DETAIL VIEWS

This section provides a more focused view for each category of Transition Activity. These views provide further insight and detail of the transition activities. As mentioned above, the phases are driven by milestone, rather than by time.

2.2.1 Overarching Activity View

The Overarching Activity View (Exhibit 2-2) focuses on the overarching transition activities. As the view demonstrates, the first phase of these activities typically focuses on defining policies, governance, or infrastructure. Once they have been initially defined or established, the remaining phases focus on executing, implementing or institutionalizing the activities.

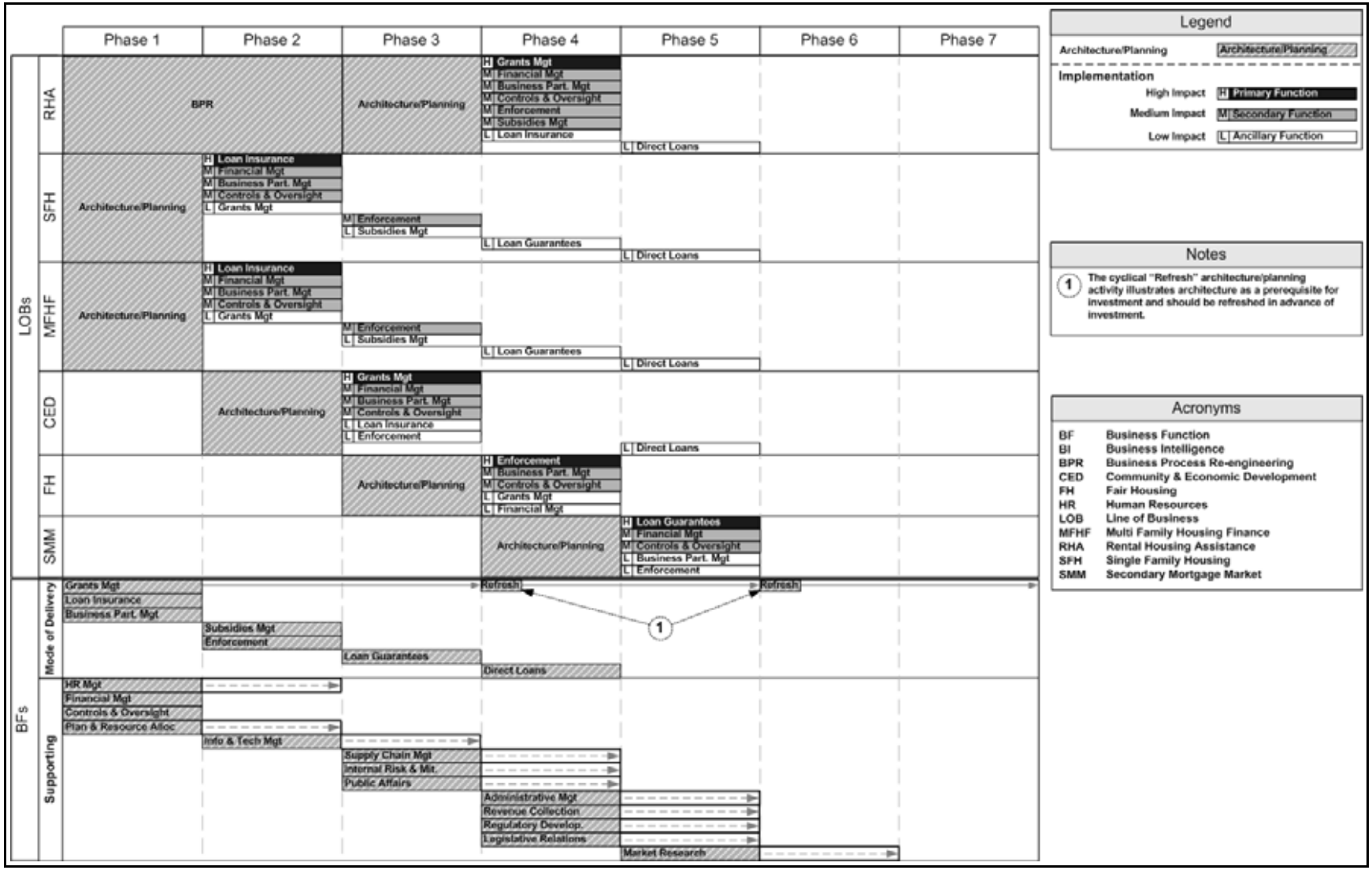
Exhibit 2-2 – Overarching Activity View



2.2.2 Line of Business and Business Function View

The Line of Business and Business Function View (Exhibit 2-3) expounds on the Transition Plan Overview (Exhibit 2-1) by showing the parallel sequencing of LOB and Business Function segments.

Exhibit 2-3 – Line of Business and Business Function View



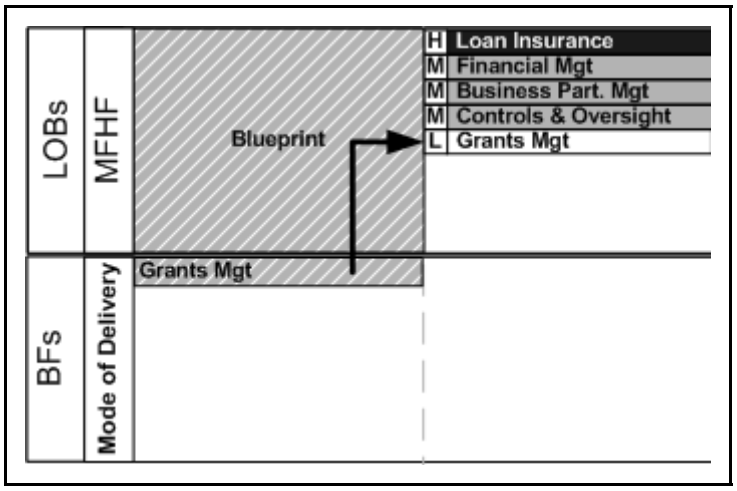
Lines of Business
For each LOB, the view depicts a single phase for blueprint development (i.e. architecture), followed by one or more phases of implementation. As described in Section 2.2.1 above, implementation of the LOBs is further delineated as implementation of the relevant business functions. While the Exhibit 2-3 illustrates that the functions have unique implementations in the LOBs, it is important to note that segment architecture for the LOBs is not simply a series of business function implementations. Each LOB's blueprint focuses on how ALL of the associated functions will work collectively to deliver services to HUD's partners and customers.

The LOB implementation cycle is not complete until all of the associated business functions have been architected, integrated in the LOB's architecture, and implemented. Therefore, the phased implementation of a LOB is driven in part by the sequencing of the associated business functions. For example, much of the RHA LOB is implemented in Phase 4. However, because the Direct Loans business function is not sequenced for architecture development until Phase 4, the RHA implementation is not complete until Direct Loans is implemented/ integrated in Phase 5.

Business Functions
As described previously, following development of the segment architectures, the implementation phase for Supporting functions is treated differently from that of Mode of Delivery functions. Typically, the Supporting functions are implemented at the Departmental level, outside of the LOBs, due to their cross-cutting nature. The exceptions to this general rule are the Financial Management and Controls and Oversight business functions. Because these functions do have processes that are unique to specific LOBs, they will be implemented through the LOBs.

The Mode of Delivery business functions are all implemented through the LOBs. This process is depicted in Exhibit 2-4 with an example using the Multi Family Housing Finance (MFHF) LOB and Grants Management business function. In this example, the Grants Management segment architecture is developed by an IPT with representation from participants from each impacted LOB. The LOB, in this case, MFHF, implements its unique Grants Management processes and business rules by leveraging the output of the segment architecture (e.g. common architecture, external initiatives such as eGrants.gov, or internal/acquired automation) and adapting it to the business purpose of MFHF.

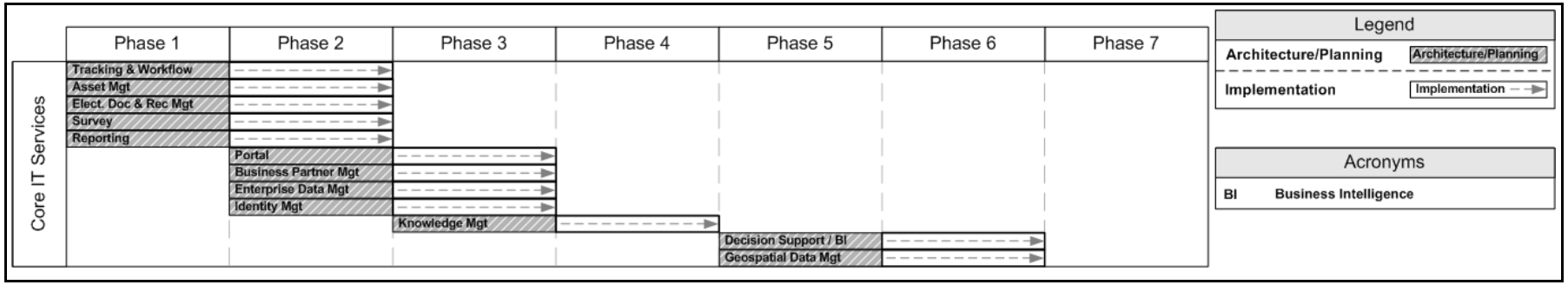
Exhibit 2-4 – Example of Grants Mgt implementation within MFHF



2.2.3 Core IT Service View

The Core IT Service View comprises 12 Core IT Services, illustrated in Exhibit 2-5. These transition activities represent potential Department-wide, re-useable service/technology offerings. The activities require architecture/planning prior to implementation. The sequence of the Core IT Service transition activities address relationships between other transition activities, where appropriate, for example: the Enforcement business function may leverage the Tracking and Workflow Core IT Service to enable automated case management.

Exhibit 2-5 – Core IT Service View



2.3 ASSUMPTIONS AND RESOURCE CONSIDERATIONS

This Transition Plan describes, prioritizes, and sequences numerous transition activities, each requiring varying degrees of duration and effort. Resources, both human and investment capital, are critical factors in achieving business transformation and IT modernization. Internal staff and contractors are necessary to design and implement the transition activities. In addition, investment infusion, whether through re-allocation or new requests, must be planned and executed.

The sequencing of the transition activities reflects current resources available to the Department. The EA Practice segment architects bear the responsibility to participate with IPTs for each LOB, business function, and core IT service architecture effort. This Transition Plan assumes that a small number of segment architecture efforts can occur at any given time, due to: dependencies among transition activities; the high degree of interaction and collaboration among the business and systems owners, IPTs, external entities (e.g., E-Gov initiatives, regulatory entities), and consultants; and current staffing level of segment architects.

New and/or re-programmed investment funding will be needed to architect segments, build or acquire systems, integrate Core IT Services, and institutionalize governance, policy, infrastructure, and standards across the Department. As new automation is brought to fruition, antiquated systems and processes can be retired to offset the cost of new investments. In this same vane, the re-use of Core IT Services (i.e. “buy once-use many”) will promote cost-avoidance and standardization. This EATP assumes that investment allocation will be executed in a timely manner to ensure continuity from architecture to implementation.

The EATP sequences the transition activities in terms of phases rather than time. The length of time necessary to complete a phase is directly impacted by variances in: resource allocation, complexity, cost, external drivers and commitments, and investment cycle. The length of a phase could range from months to years. The EATP assumes implementation efforts constitute equal or greater time than their blueprint counterparts.

2.4 RISKS AND MITIGATION STRATEGIES

There are many risks inherent in large scale business transformation and IT modernization efforts. However, this plan has been structured to mitigate risks to the extent possible. The risks identified below are general risks

applicable to the plan as a whole, not transition activity-specific. Exhibit 2-6 lists each risk and provides corresponding rationale and mitigation strategies/actions.

Exhibit 2-6 – Risks and Mitigation Strategies

Risk	Potential Impact	Rationale	Mitigation Strategies/Actions
Limited resources available to initiate and complete transition activities	High	Limited resources, including people and funding, will hinder HUD's ability to complete projects in a timely manner	EATP sequences activities based on priorities, dependencies, and constraints Comprehensive IT Lifecycle Governance addresses investment structure that ensures IT funding driven by architecture Establishment of a EPMO for program management responsibilities across all segment/program efforts
Management and coordination of multiple, concurrent transition activities	High	- Multiple segment blueprint or implementations will be occurring simultaneously - Transition activities have numerous interdependencies and constraints that add complexity	The establishment of a central organization responsible for coordinating individual projects to larger and more complex programs focused around segments and Core IT Services. Establishment of Enterprise Program Office (EPMO), with responsibility for Program Management and coordination across programs/segments

Risk	Potential Impact	Rationale	Mitigation Strategies/Actions
Inadequate expertise or unavailable skill sets to execute transition activities	High	- A large percentage of HUD's workforce is nearing retirement - A broad portfolio of transition activities require varying degrees of skill sets across both functional and technical dimensions to ensure program success - Move toward service oriented and component-based methodologies requires re-focusing of IT skill sets	Workforce planning process that anticipates skill set requirements and implements an appropriate workforce development/acquisition strategy. IT Workforce Strategy, Planning, and Management overarching activity addresses the acquisition of labor resources/skill sets in the short term and in-house development of skills through appropriate training for the long term
A lack of effective security and privacy measures	High	Adequate security and privacy policies, processes, and technologies are needed to protect valuable information resources	Establish a security strategy that ensures that security is addressed throughout the architecture and modernization effort - Security and Privacy Architecture overarching activity develops security and privacy profiles and ensures that it is integrated into each HUD architectural layer (i.e. performance, business, data, services and technology)

Risk	Potential Impact	Rationale	Mitigation Strategies/Actions
Lack of acceptance for modernization strategy	High	Reengineered processes, consolidated systems, and new technologies can cause: - Resistance to change from a lack of desire or buy-in - Inability to adapt to new working conditions	Change Management strategy that includes: A communications strategy to share information with workforce, engaging them early in the process to gain early buy in by establishing unique value propositions, and demonstrating clear benefits (e.g., cost/benefit analysis). The IT Modernization Communications Strategy overarching activity helps HUD IT customers navigate through the changes and understand how they uniquely impact them A training program that educates staff on new processes and systems, shortening the learning curve and dampening the impact of the transition. The IT Workforce Strategy, Planning, and Management overarching activity includes developing a training strategy, preparing curriculum and materials, and delivering training
Lack of leadership to champion modernization efforts or support a project's initiation and long-term needs	Medium	Executives who are engaged in the process must act as project advocates to enforce participation and cooperation from their staffs	Establishment of executive level bodies to set strategic direction, and project sponsors to champion transition activity blueprint and implementation efforts - IT Lifecycle Governance overarching activity establishes executive-level governance bodies comprised of senior managers from across the enterprise that set the strategic vision for modernization efforts - The Transition Plan identifies specific program offices that should serve as sponsors to champion segment development and deployment activities

Risk	Potential Impact	Rationale	Mitigation Strategies/Actions
Insufficient integration of independent segment efforts (i.e. new stovepipes drawn around segment lines)	Medium	- Multiple segment blueprint or implementations will be occurring simultaneously - Limited resources may hinder participation from key stakeholders	Each LOB segment IPT comprised of members from each core business function that supports it. Likewise, the IPTs for each business function segment consist of participants from the impacted LOBs Establishment of EPMO with responsibility for Program Management and coordination across programs/segments Participation of segment architects with view toward integration across segments
Unclear roles and responsibilities among governance bodies	Medium	There are many transition activities requiring governance, decision-making, and enforcement through different mechanisms and at different levels of the organization	Institute a governance structure with clearly defined roles and responsibilities of governance bodies across HUD - IT Lifecycle Governance overarching activity clearly defines roles and responsibilities for managing all key IT Lifecycle activities within existing or new bodies

3 TRANSITION ACTIVITY DETAILS

3.1 INTRODUCTION

The purpose of this section is to provide a brief summary of each of the transition activities identified and sequenced in the views presented in Section 2. A number of appendices relate to the descriptions in this section and offer interested readers considerably more detail on each activity. The focus of each related appendix is as follows:

- **Volume 2 - Appendix A, Transition Activity Profiles** – A single profile has been created for each transition activity. The profiles provide a consolidated source of information for each activity, including:
  - Description
  - Proposed sponsors and participants
  - Status (i.e. proposed, active, blueprint, implementation, etc.)
  - Dependencies
  - Related prior work or work in progress
  - Related external activities (e.g. E-Gov, etc.)
  - Related strategic goals and objectives
  - Related LOBs and business functions
  - Related applications and initiatives
  - Opportunities summary (e.g. consolidation, technology refresh, etc.)
- **Volume 3 - Appendix B, Transition Activity Prioritization Score Sheets** – An individual score sheet has been created for each transition activity. These prioritization scores were one of several factors used to sequence the activities. For each category of transition activity, a standard set of weighted criteria were used to evaluate the priority of the activities. While criteria differ by category, they generally measure factors such as:

- Business transformation: opportunities to significantly transform HUD's business; respond to driver (i.e. help HUD improve financial controls); respond to increased demand for services, etc.; respond to commitment (PMA/Proud-to-Be, statements in passback, strategic plan objectives/ PART commitments, etc.); respond to GAO, IG, OMB audit findings, identified deficiencies, watch lists, etc.

- Financial impact: cost avoidance through system consolidation (i.e. reduced maintenance, etc.); improved productivity or efficiency; applications with potential for consolidation; offices that would participate in activity; business functions that would be addressed by activity

- Extent to which activity is a pre-requisite for other priority activities: initiation or completion of other high impact transition activities is dependent on the completion of this transition activity

- Resource availability: total FY06 DME $ of participating initiatives (i.e. represents money that could be re-directed); judgment on level of effort (i.e. establishing a new policy could be accomplished more easily than completing an LOB segment); subjective judgment on expertise of staff and contractor support in carrying out the effort

- Opportunities for early successes: early successes constitute internally identified, short-term (2 years) successes or "quick wins" that can be leveraged to garner buy-in from stakeholders and build momentum to initiate other transition activities

- Extent to which activity can leverage work in progress: HUD has already begun work in this area, and that work is moving HUD in the desired direction (i.e. toward the Target EA); measure by level of maturity of the effort (i.e. IT Lifecycle Framework phase); pieces of the transition activity, such as the blueprint or actual implementation of a segment, may already be in progress

- **Volume 3 - Appendix C, Current Applications Mapped to Target LOBs, Business Functions, and SRM Service Components** – The matrix is an important input to the opportunities analysis, prioritization and sequencing that were performed for the transition activities. Understanding how the applications relate to desired service components helps in identifying potential opportunities for consolidation of applications based on common functionality.

- **Volume 3 - Appendix D, Current Applications Mapped to Technology Service Specifications and Products** – The matrix is an important input to the opportunities analysis, prioritization and sequencing that were performed for the transition activities. Understanding how the applications relate to desired technologies helps in identifying potential opportunities for technology refresh.

- **Volume 3 - Appendix E, Transition Activity Opportunity Analysis** – This appendix builds on the opportunities analysis highlights included in each of the profiles in Volume 2 - Appendix A. For each transition activity, the appendix presents focused slices from the mappings in Volume 3 - Appendices C and D to highlight specific opportunities.

3.2 OVERARCHING ACTIVITIES

The overarching activities support the development and implementation of LOB segments, business function segments, and Core IT Services. They encompass the enabling policy, governance, and infrastructure efforts needed to plan and execute the IT modernization. In total, there are 11 overarching activities, each discussed briefly below.

3.2.1 IT Lifecycle Governance

Overview
In order to ensure the success of the IT modernization, HUD must make sure all elements of the IT Lifecycle governance are tuned to a common purpose. Currently, there are multiple governance structures, policies, and procedures guiding and informing various aspects of the IT Lifecycle in practice at HUD. However, these governance elements have been created for disparate purposes at different times and do not represent a cohesive vision for managing the IT modernization effort. This transition activity represents a comprehensive effort to review and refine current IT Lifecycle governance and/or establish new IT Lifecycle governance.

Prioritization and Sequencing
IT Lifecycle Governance is targeted for initiation in the first phase of the transition. This activity received the highest prioritization score among all overarching activities. Governance is a critical success factor in large scale modernization efforts. Without it, there is no means of ensuring consistent execution throughout the IT Lifecycle. In addition, the activity builds on considerable prior work and can be done with a relatively low level of effort.

3.2.2 Enterprise Program Management Office (EPMO)

Overview
As HUD moves toward the implementation of the Target EA, it needs to shift the way it funds and manages IT initiatives, from individual projects to larger and more complex programs focused around segments and Core IT Services. There is currently no office with responsibility for managing the execution of these programs. The first phase of this transition activity focuses on establishing the EPMO (defining functional responsibilities, determining organizational structure and staffing requirements, funding the office, hiring or transitioning staff, etc.). The second phase of the activity focuses on the daily operations of the EPMO.

Prioritization and Sequencing
The EPMO is targeted for initiation in the first phase of the transition. It received a very high prioritization score among all overarching activities. Having an enterprise program management function is a critical success factor in large scale modernization efforts. Without it, there is no coordinating body for the myriad work streams being conducted in parallel. In addition, the activity builds on considerable prior work and can be staffed at least in part by reassigning existing staff.

3.2.3 Security and Privacy Architecture

Overview
Throughout all aspects of the IT modernization effort, security and privacy must be integrated into all layers of HUD's EA. HUD will take a comprehensive view of security and privacy, from policy to technology, and will ensure compliance with all relevant requirements, including the Federal Information Security Management Act (FISMA), National Institute of Standards and Technology (NIST) guidelines, and OMB guidance. Security and privacy profiles will be developed for each architectural layer (i.e. performance, business, data, services and technology), and decisions will be made about what controls can be implemented at the enterprise level and what controls should remain at the system level.

Prioritization and Sequencing
The Security and Privacy Architecture is targeted for initiation in the first phase of the transition, and will extend into the second phase. The activity received the second highest prioritization score among all overarching activities. Defining security architecture elements early in the IT modernization effort is critical to ensuring information security throughout the transition. Security is also a CIO priority. HUD has an IT Security office with dedicated staff and contractor support, so resources are available to initiate this work.

3.2.4 Technical Standards Governance

Overview
Technical standards (i.e., TRM service specifications and products) are at the core of HUD's EA principle of reduced technological complexity and improved interoperability. Technical standards will be the foundation of HUD's technology environment. Currently, HUD's Configuration Change Management Board has responsibility for the adoption and maintenance of Department-wide standards. However, the EA practice recently defined a set of Target EA standards and there has been no consideration of how these standards relate to those currently maintained by the CCMB. The Technical Standards Governance transition activity will focus on defining policies, procedures, roles and responsibilities for defining, adopting, maintaining, implementing, retiring, and enforcing technical standards.

Prioritization and Sequencing
Technical Standards Governance is targeted for initiation in the first phase of the transition, and should be completed prior to the completion of the Technical Standards Adoption/Refresh transition activity. It received a very high prioritization score among all overarching activities. It has a high potential impact on the overall transition, and can be accomplished with existing resources with a relatively low level of effort.

3.2.5 Technical Standards Adoption / Refresh

Overview
As stated in Section 3.2.4 above, HUD's EA practice recently defined a set of proposed technical standards as part of its Target EA V1.0. However, this set of standards was based on a limited scope effort and is not a comprehensive set of standards. Moreover, it has not been vetted or considered for adoption. Simultaneously, the CCMB continues to maintain its set of "Current IT infrastructure and system development platform standards." This transition activity focuses on defining a single consolidated set of technical standards and products for HUD, and regularly refreshing the standards.

Prioritization and Sequencing
Technical Standards Adoption/Refresh is targeted for initiation in the first phase of the transition. Some of the activities described above can be initiated in parallel with the Technical Standards Governance transition activity, but the final adoption process cannot occur until appropriate governance has been established. It received a very high prioritization score

among all overarching activities. It has a high potential impact on the overall transition, and builds on significant work done to date.

3.2.6 IT Modernization Communication Strategy

Overview
The HUD IT modernization is a large, complex effort that represents a significant paradigm shift in the way HUD architects, invests in, plans for, develops, and implements enabling IT in support of its business. HUD will develop and execute a comprehensive communication strategy to focus IT staff with a common purpose, garner stakeholder buy-in, and help IT customers understand the IT modernization.

Prioritization and Sequencing
The IT Modernization Communication Strategy is targeted for initiation in the first phase of the transition. It received a very high prioritization score among all overarching activities. It has a high potential impact on the overall transition, builds on work done to date, and can be accomplished with existing resources without a high level of effort.

3.2.7 Service Oriented Architecture (SOA) Core Infrastructure

Overview
HUD's Target EA hails a move to a service oriented and component-based architecture. A core element of the IT modernization will be the move from monolithic, closed systems to more open and modular architectures. This represents a significant shift in the way applications will be designed, developed, and integrated with existing legacy systems and applications. While the Target EA signals a move in this direction, it does not define specific SOA infrastructure components that will be required to support the SOA methodology. This task focuses on architecting and implementing the SOA core infrastructure (e.g. registries, middleware, etc.).

Prioritization and Sequencing
The SOA Core Infrastructure is targeted for initiation in the first phase of the transition, but will extend through the second phase. It is projected that the SOA architecture will be defined early in the second phase, so that it can be factored into the architectures of the segments and Core IT Services. The implementation of the SOA should be complete within the third phase. Its prioritization score was in the middle range relative to all overarching activities. It has a high potential impact on the overall transition, and is a pre-requisite to implementation of other transition activities (i.e. segments

and Core IT Services). However, it could be relatively resource intensive, and there is no work done to date in this area to build on.

3.2.8 Data Management Strategy, Standards, and Governance

Overview
A principle of the Target EA is that information and data are managed as enterprise assets. Information leveraged across the value chain improves performance, supports decision-making and enables accurate reporting. Shifting from programmatic information silos to enterprise data management is a significant undertaking and a core element of the IT modernization. This activity encompasses developing an enterprise data model and standards, and establishing governance and stewardship responsibilities.

Prioritization and Sequencing
The Data Management Strategy, Standards and Governance activity is targeted for initiation in the second phase of the transition, but will extend through the third phase. This ensures completion prior to the definition of the Enterprise Data Management core IT service in the fourth phase. Its prioritization score was in the middle range relative to all overarching activities. It has a high potential impact on the overall transition, but is not an immediate pre-requisite for other early transition activities. There has been little work done to date in this area to build on.

3.2.9 IT Workforce Strategy, Planning, and Management

Overview
The evolution toward a SOA environment represents a significant shift in the way applications will be designed, developed, and integrated with existing systems. This, in turn, represents a significant shift in the skill sets required of the HUD IT staff and contractors responsible for the management and execution of systems projects and programs. This transition activity encompasses the activities needed to ensure the proper evolution of HUD's IT workforce.

Prioritization and Sequencing
The IT Workforce Strategy, Planning, and Management activity is targeted for initiation in the second phase of the transition. Its prioritization score was in the low range relative to all overarching activities. It has a moderate potential impact on the overall transition, but is not an immediate pre-requisite for other early transition activities. The major focus for HUD's workforce strategies in the near-term should be on program and project

managers, as much of HUD's actual systems work is performed by contractors. There has been little work done to date in this area to build on.

3.2.10 SOA Systems Development Methodology

Overview
HUD's current systems engineering practices are not geared toward service oriented design principles. This transition activity focuses on the integration of SOA methodologies and principles into HUD's systems engineering practices, including revision of relevant policies and guidance.

Prioritization and Sequencing
The SOA Systems Development Methodology activity is targeted for initiation in the second phase of the transition. Its prioritization score was in the low range relative to all overarching activities. It has a high potential impact on the overall transition, because the Target EA is built on SOA principles. However, IT modernization work can continue without a formal SOA system development methodology in place near-term. As more modernization activities move into development/ implementation, a methodology becomes more critical. In addition, HUD does not have significant in-house expertise in SOA, and there has been little work done to date in this area to build on.

3.2.11 Service Component Governance

Overview
Service Component Governance encompasses the processes and policies needed to manage the service component lifecycle, including component adoption, discovery, publishing, enforcement and retirement. This activity includes developing and enforcing policies and procedures, establishing a governance body, creating mechanisms for component sharing, and enforcing compliance.

Prioritization and Sequencing
Service Component Governance is targeted for initiation in the second phase of the transition. Its prioritization score was in the low range relative to all overarching activities. It will have low near-term impact, but high long-term impact on the IT modernization. It will likely be several years before HUD is ready to make use of service component registries and other outputs from this transition activity. In addition, HUD does not have significant in-house expertise in SOA, and there has been little work done to date in this area to build on.

3.3 SEGMENTS – LINE OF BUSINESS

Lines of Business (LOBs) represent the strategic view of HUD's business. Each LOB provides a unique set of business services to customers and plays a unique role in fulfillment of HUD's mission. HUD delivers citizen-focused, public, and collective goods and/or benefits as a service and/or obligation through the LOBs.

3.3.1 Community and Economic Development (CED)

Overview

The Community and Economic Development (CED) LOB segment encompasses those processes, systems, and technologies that allows HUD to support the activities of its partners (e.g., states, local communities, non-profit entities, faith-based organizations, etc.) dedicated to the construction and rehabilitation of homes, community structures and infrastructure, and other community revitalization and job creation projects funded primarily through the award and administration of block grants. This LOB segment also supports HUD's programs dedicated to helping communities prevent/end homelessness and transition victims of temporary and chronic homelessness into permanent housing.

Prioritization and Sequencing

Community and Economic Development is targeted for initiation in the second phase of the transition. It scored near the top of the prioritization, sharing the second highest score with two other LOBs. It demonstrates medium potential for financial impact as it only supports a small number of offices, aligns to half of the Mode of Delivery business functions, but has a very high application count (e.g., 86 applications), presenting significant opportunities for consolidation. Most importantly, it demonstrates a high potential for business transformation, as it addresses areas of management and performance improvement with respect to community development grant programs. Specifically, HUD is incorporating improved planning and performance measurement processes for funds usage to ensure accountability and results from block grant recipients and executors of community programs. As such, its implementation helps to operationalize the architecture of Grants Management; grants are one of HUD's most important service delivery financial instruments.

3.3.2 Fair Housing (FH)

Overview

The Fair Housing (FH) LOB segment encompasses the processes, systems, and technologies that allow HUD to effectively promote, monitor, and enforce fair and equal housing opportunities, practices, and laws, respectively. In addition, this segment equips HUD with the capabilities to develop policies and introduce legislation that ensure equal access to housing, and manage grants processes supporting fair housing programs. Also, within its purview is the monitoring of local housing agencies, as well as Government Sponsored Entities (GSEs) like Freddie Mac and Fannie Mae for compliance with fair housing laws and practices.

Prioritization and Sequencing

Fair Housing is targeted for initiation during the third phase of the transition. It scored near the bottom of the prioritization among all LOBs. It displays at best an average potential for financial impact, as it supports primarily only one office and but does have a high application count (e.g., 60 applications), offering high consolidation potential. It demonstrates medium potential for business transformation, as it is enabled by only a few Mode of Delivery business functions, and in the short term, is considered only a medium priority area (with respect to more urgent management activities) and resources. However, it is an area requiring improved controls and oversight of business partners as cited by government reports. Its implementation does assist in the operationalization of the architecture for the administration and management of grants, one of HUD's prime financial vehicles.

3.3.3 Multi Family Housing Finance (MFHF)

Overview

HUD's Multi Family Housing Finance (MFHF) LOB segment encompasses the processes, systems, and technologies that primarily enable HUD to provide mortgage insurance to HUD-approved lenders to facilitate the construction, rehabilitation, purchase and refinancing of multifamily housing properties and healthcare facilities. It provides capabilities that promote the migration of renters of multi-family units to ownership through the administration of vouchers for down payments or mortgage payments, as well as certain capital grant programs dedicated to the building or maintenance of multi-family dwellings.

Prioritization and Sequencing

Multi Family Housing Finance is targeted for initiation in the first phase of the transition. It received along with two other LOBs the second overall highest score during the prioritization. It demonstrates a medium potential for financial impact, as it supports a few but prominent offices, and has a low

application count (e.g., 20 applications), presenting few consolidation opportunities.

More importantly, it has an extremely high potential for business transformation for several reasons. First, it is supported to varying degrees by all of HUD's Mode of Delivery business functions. Second, it operationalizes to a large extent the Loan Insurance business function, which with grants is one HUD's most prominent financial vehicles and constitutes a large percentage of HUD's asset portfolio. Most importantly, it enables HUD to respond to government audit report (e.g., GAO reports and President's Management Agenda (PMA) commitments) recommendations to improve its control and monitoring of multi family housing operators, as well as demand greater accountability from fund recipients on the performance of their programs, in order to prevent fraud and reduce resource waste. The blueprint for this segment is already underway and any subsequent work builds upon these efforts.

3.3.4 Rental Housing Assistance (RHA)

Overview

The Rental Housing Assistance LOB segment encompasses the processes, systems, and technologies that allow HUD to provide decent and affordable rental housing to low-to-medium income families, primarily through the use of grants and subsidies (e.g., tenant and project based vouchers). Additional capabilities allow HUD to insure loans used for the development, purchase, refinance, and rehabilitation of rental housing; provide financial vehicles such as direct loans to fund the construction, purchase, operation, and maintenance of rental housing for the elderly and disabled; and develop housing strategies for individuals with HIV/AIDS.

Prioritization and Sequencing

Rental Housing Assistance is targeted for initiation in the first phase of the transition. It received the second highest score during the prioritization relative to all HUD LOBs. It demonstrates a medium potential for financial impact as it supports a medium number of offices, and has a low application count (e.g., 20 applications), presenting few consolidation opportunities. It exhibits a very high potential for business impact as its implementation completely operationalizes the architecture for grants, one of HUD's most frequently used program funding vehicles. Furthermore, it is supported by a high number of Mode of Delivery business functions. In addition, it addresses PMA and PART (Programs Assessment Rating Tool) assessments and GAO report recommendations for improved oversight of partners (e.g., Public Housing Authorities), and enhanced program management and control

practices that help programs demonstrate effectiveness and prevent resource waste (e.g., subsidy overpayments due to overestimation of tenant income, as well as fraudulent payment to contractors for work not performed).

3.3.5 Single Family Housing (SFH)

Overview
HUD's Single Family Housing LOB segment encompasses the processes, systems, and technologies that enable HUD to primarily provide mortgage insurance to lenders on loans for the development/purchase/refinancing of new or existing homes, condominiums, and manufactured housing; financing of houses needing rehabilitation; and for reverse equity mortgages to elderly homeowners. Secondary activities within this LOB include the administration of subsidies (i.e., vouchers) for use toward down payments or mortgage payments, as well as certain grant programs dedicated to the building or maintenance of single family dwellings.

Prioritization and Sequencing
Single Family Housing is targeted for initiation in the first phase of the transition. It received the highest score during the prioritization of HUD LOBs. It presents high potential for financial impact, as it has an application portfolio that is already demonstrating opportunities for consolidation (i.e., consolidation of 36 legacy systems to 7 core modules).

More importantly, it demonstrates a very high potential for business transformation, as the majority of GAO studies cite deficiencies within the control and monitoring practice of Single Family Housing partners (overpayments for contract work never performed; monitoring of lenders, appraisers, etc.) as the chief management challenge facing HUD, and a high priority area to show performance improvements in. Also, SFH is supported to varying degrees by all of HUD's Mode of Delivery business functions. Finally, its implementation nearly operationalizes the Loan Insurance business function, which represents insured mortgages that comprise a large percentage of HUD's asset portfolio.

3.3.6 Secondary Mortgage Market (SMM)

Overview
The Secondary Mortgage Market (SMM) LOB segment encompasses the processes, systems, and technologies that allow HUD to promote homeownership by managing programs responsible for channeling funds from investors into the mortgage industry, whereby establishing a secondary

mortgage market that creates an abundant supply of mortgage funds for potential homeowners.

Prioritization and Sequencing
Secondary Mortgage Market is targeted for initiation during the fourth phase of the transition. It received the lowest score during the prioritization of LOBs. It has a low potential for financial impact as it supports a low number of offices, and has a low application count (e.g., 29 applications), presenting few opportunities for consolidation. It also demonstrates a medium to low potential for business transformation, as it is largely free of any serious management challenges, has only a few supporting Mode of Delivery business functions, and is not a predecessor for any other transition activities. Rather, its implementation is only complete after the Loan Guarantees architecture is complete.

3.4 SEGMENTS – BUSINESS FUNCTION

The Business Function is the high-level aggregation of related business processes. A function represents the tactical view of the business, i.e., how things get done. Mode of Delivery, Support Delivery of Services, and Management of Government Resources are the three tactical forms of business functions. The Mode of Delivery represents the mechanisms HUD's LOBs use to deliver goods and services. The Support Delivery of Services represent the critical policy, programmatic and managerial foundation to support HUD's operations. The Management of Government Resources represent the back office support activities that enable HUD to operate effectively.

3.4.1 Administrative Management

Overview
The Administrative Management business function segment encompasses the processes, systems and technologies that enable HUD to perform many of the back-office type activities that support the execution of its primary, mission critical business operations. Specific sub function* performed within this segment include Emergency Facilities, Fleet, and Equipment Management; Security Management; Corporate Travel Management; Help Desk Services; Workforce Policy Development and Management; and mail distribution and printing services.

Prioritization and Sequencing
Administrative Management is targeted for initiation in fourth phase of the transition. It scored in the middle range on the prioritization relative to the

overall group of business functions. In its favor, it has a high potential for positive financial impact due to the large number of offices performing this function, high application count (e.g., 45 applications), and potential opportunities for consolidation. However, it has low potential for business impact relative to other more mission critical functions, and is not a required predecessor for other transition activities.

3.4.2 Business Participant Management

Overview
The Business Participant Management business function segment includes the processes, systems, and technologies that enable HUD to effectively manage its communications with the public and its program participants (e.g., business partners, non-profit organizations, community organizations, state and local governments, other Federal agencies etc.) regarding its programs, operations, goals, objectives, and performance.

Prioritization and Sequencing
Business Participant Management is targeted for initiation within the first phase of the transition. It received a very high prioritization score relative to the overall group of business functions. It has a high potential for positive financial impact as it supports a large number of offices sponsoring programs where communication and interaction with partners is crucial, has a high application count (e.g., 48 applications), and corresponding potential opportunities for consolidation. Moreover, it has a high potential for business impact as HUD's distributed service delivery model amplifies the need for HUD to improve the management of its business relationships. Improved information exchange with citizens and business partners is also an important precursor for other areas of improved management practices and topics of GAO reports: improved partner collaboration, controls, oversight, and enforcement. Finally, given its importance among the Mode of Delivery business functions, its architecture must precede the implementation of any HUD Lines of Business.

3.4.3 Controls and Oversight

Overview
The Controls and Oversight business function segment encompasses the processes, systems, and technologies that enable HUD to maintain close oversight for the programs and funds for which it is responsible. It allows HUD to improve the performance management of the business partners that constitute its highly distributed service delivery model and execute most of its programs, ensuring that HUD programs are providing their intended

results for citizens and communities. Specific sub functions that comprise this business function are Corrective Action, Program Evaluation, and Program Monitoring.

Prioritization and Sequencing
Controls & Oversight is targeted for initiation in the first phase of the transition. It received the second highest score in the prioritization out of all business functions. It has a high potential for positive financial impact as it is performed by most offices, has a large number of applications (e.g., 102 applications), and exhibits a high potential for consolidation. Further, it has a very high potential for business transformation, representing the predominant area of concern within GAO reports and PMA requirements- needed management improvements that ensure that programs and partners are effectively delivering HUD services to citizens, absence of fraud and resource waste- and it strongly aligns with HUD's Proud To Be commitment to "Get to Green" by September 2005. Given the nature of its role in monitoring program performance and funds usage, Controls & Oversight is treated similar to a Mode of Delivery business function, in that its architecture is operationalized through the implementations of each LOB.

3.4.4 Direct Loans

Overview
The Direct Loans business function segment includes processes, system, and technologies that enable HUD to lend funds directly to non-governmental entities for affordable housing, homeownership, and community development activities. This segment supports HUD's Single Family Housing, Multi Family Housing Finance, Rental Housing Assistance, and Community and Economic Development LOBs.

Prioritization and Sequencing
Direct Loans is targeted for initiation in the fourth phase of the transition. It scored near the bottom of the prioritization with respect to both the other Mode of Delivery business functions, and also the broader group of all HUD business functions. At best, it presents average potential for financial impact, as it supports only a handful of program offices, but does have a high application count (e.g., 33 applications), and corresponding potential opportunities for consolidation. Furthermore, it has a low potential for business impact, as it is a minor service delivery vehicle used by few HUD programs to finance initiatives. However, its architecture is a prerequisite for the implementations of those HUD LOBs that it supports.

3.4.5 Enforcement

Overview
The Enforcement business function segment encompasses the processes, systems, and technologies that allow HUD to properly monitor its business partners, the general housing industry, and individuals for compliance with housing laws or regulations, and resolution of issues through conciliation, arbitration and enforcement. It is primarily performed by the Fair Housing LOB. Coupled with the Business Participant Management, and Controls & Oversight business function segments, it provides HUD with an integrated set of capabilities for effectively managing its business partners, from information sharing, and communication, to monitoring, and enforcement.

Prioritization and Sequencing
Enforcement is targeted for initiation in the second phase of the transition. It scored near the very top of the prioritization among the Mode of Delivery business functions, and amongst the top scores for all business functions. It has a medium potential for positive financial impact, as it supports an average number of HUD offices but has a high application count (e.g., 47 applications), presenting opportunities for consolidation. It has a medium to high potential for business transformation, as it is performed to some degree by all HUD LOBs (but primarily by Fair Housing). Furthermore, enforcement practices have been cited as an area for management improvement for some HUD activities (e.g., Fair Housing) by GAO audit reports. It also provides HUD with an end-to-end set of business partner management capabilities when coupled with improved partner communication, controls, and oversight practices, all areas of concern in GAO and PMA audits and assessments. As a Mode of Delivery business function, the completion of its architecture is a prerequisite for the completion of all LOB implementations.

3.4.6 Financial Management

Overview
The Financial Management business function segment encompasses a comprehensive set of accounting and finance processes, technologies, and services designed to manage HUD's financial control activities and flow of financial information across HUD's information systems. Specifically, this segment encompasses functions and service components related to accounting, billing, collections and receivables, credit transactions, expense management, payment settlement, payments and financial management.

The HUD Integrated Financial Management Improvement Program (HIFMIP) has been identified as the department's integrated financial management solution, consolidating and standardizing financial processes, standards, and

systems enterprise-wide in compliance with the Joint Financial Management Improvement Program (JFMIP) requirements.

Prioritization and Sequencing
Financial Management is currently in its architecture stage and logically falls within the first phase of the transition. It received the highest score in the prioritization among all business functions. It has a high potential for financial impact with a high application count (e.g., 42 applications) that presents opportunities for consolidation under the HIFMIP common financial architecture. More importantly, it demonstrates a very high potential for business transformation by addressing a predominant, recurring area of concern of GAO audit findings- insufficient financial control processes and systems that trigger overpayment and over subsidization issues. Furthermore, it is directly linked to an OMB Proud-To-Be commitment, which elevates its business impact relative to other functions. Finally, since nearly all of HUD's programs are enabled through financial vehicles such as vouchers and grants, FM is treated similar to a Mode of Delivery business function, in that its architecture is operationalized to varying degrees through the implementation of each LOB. In general, FM supports all LOBs, but has its strongest alignment to those LOBs whose primary functions are of a financial nature (e.g., Loan Insurance, Grants Management, etc.).

3.4.7 Grants Management

Overview
The segment architecture for the Grants Management business function focuses on the processes, systems and technologies that support the administration and management of grants management programs (i.e., evaluating, scoring, awarding, monitoring grant programs). The scope of HUD's grants management activities is limited to back-office grant processes, ensuring little duplication with the Grants.gov effort, which is a front-end portal that allows grantees access to grants information.

Prioritization and Sequencing
Grants Management is targeted for initiation within the first phase of the transition. It scored near the top of the prioritization among both the Mode of Delivery functions, and the broader set of all HUD business functions. It has a medium potential for financial impact with a high number of offices supported, but low application count (e.g., 20 applications) with limited opportunities for consolidation. It exhibits a very high potential for business impact, as it is a major financial vehicle used to fund major HUD programs, and addresses underperforming grants programs (e.g., CDBG received a "Ineffective" ranking) and deficient grant planning and accountability

practices identified by PART and PMA assessments. The completion of its architecture is a prerequisite for the completion of its LOB implementations.

3.4.8 Human Resource Management

Overview

The Human Resource Management business function segment encompasses a comprehensive suite of processes, services and technologies to fully support the management of human resources across HUD. It makes available all HR information to managers and supervisors for workforce planning and employee development, and helps to ensure that HUD employees are used in the most effective manner possible. Specifically, within this segment reside functions, processes, and service components related to career development and retention, contingent workforce management, education and training, personnel administration, recruiting, retirement management, skills management, time reporting and workforce acquisition and optimization.

The HUD Integrated Human Resources and Training System (HIHRTS), currently underway, represents the application target for this segment architecture, combining the needs of the HUD Office of Human Resources, the HUD Training Academy as well as addressing the HR needs of the entire department to produce an integrated system that can address most human resources and training information systems requirements.

Prioritization and Sequencing

Human Resources Management is currently migrating from architecture to implementation and rightfully falls within the first phase of the transition. It scored in the top third of the prioritization relative to the overall business function category. It is a cross-cutting function, performed by most of the offices and has high potential for early successes by leveraging an existing, outsourced service/system (i.e., HR Connect) and through integration and/or replacement of existing in-house applications. It is also directly linked to an OMB Proud-To-Be commitment, which elevates its business impact relative to other functions. It is not a required predecessor to other transition activities.

3.4.9 Information and Technology Management

Overview

The Information and Technology Management business function segment encompasses the processes, systems, and technologies that allow HUD to properly orchestrate the information technology resources (i.e., hardware

and infrastructure) and systems it requires to effectively provide its services and execute its mission. Specific sub functions contained within the purview of this segment are Systems Development, Lifecycle Change Management, IT Infrastructure Maintenance, System Maintenance, IT Security, Record Retention, and Information Management.

Prioritization and Sequencing
Information and Technology Management is targeted for initiation in the second phase of the transition. It scored in the top half of the prioritization relative to the overall business function group. The function is cross-cutting and is performed by a large number of offices. Further, it has a large number of applications (e.g., 102 applications), presenting a high potential for consolidation. Though, IT modernization along with process reengineering is a large piece of business transformation efforts, it has medium potential for business impact, as it trails more mission-critical functions (e.g., Controls & Oversight and Business Participant Management), and is not a required predecessor for other transition activities.

3.4.10 Internal Risk Management and Mitigation

Overview
The Internal Risk Management and Mitigation business function segment encompasses the processes, systems, and technologies that permit HUD to analyze its exposure to risk and develop appropriate mitigation and countermeasure strategies. The sub functions encompassed within this business function are Contingency Planning, Continuity of Operations (COOP), and Service Recovery.

Prioritization and Sequencing
Internal Risk Management and Mitigation is targeted for initiation in the third phase of the transition. It ranked in the middle range of the prioritization relative to the overall business function group. It has a high potential for positive financial impact due to the large number of offices performing this function and moderate application count (e.g., 28 applications), consolidation opportunity potential, and resource availability. However, this function has low potential for business impact relative to other more mission-critical functions, and is not a required predecessor for other transition activities.

3.4.11 Legislative Relations

Overview

The Legislative Relations business function segment encompasses the processes, systems, and technologies that allow HUD to perform activities aimed at the development, tracking, and amendment of public laws by effectively communicating and managing its relationship with Congress. This segment allows HUD to accurately present its views to Congress, including defending its budget requests and legislative initiatives. Specific sub functions within this business function are Legislation Tracking, Legislation Testimony, Proposal Development, and Congressional Liaison Operations.

Prioritization and Sequencing

Legislative Relations is projected to begin in the fourth phase of the transition. It scored in the lower third of the prioritization, receiving the lowest score compared to other business functions. While it is a cross-cutting business function supporting all LOBs, and there is a moderate number of offices performing this function, it has minimal potential for financial impact due to the low number of applications (e.g. 7 applications), available resources, and consolidation opportunities. In addition, it has a low business impact and transformation assessment relative to other more mission-critical functions, as it is neither an area of management concern nor a predecessor to other transition activities.

3.4.12 Loan Guarantees

Overview

The Loan Guarantees segment encompasses the activities associated with providing liquidity to the secondary mortgage market by attracting capital from the Nation's capital markets into the residential mortgage markets. As such, it primarily supports the Secondary Mortgage Market LOB.

Prioritization and Sequencing

Loan Guarantees is targeted for initiation during the third phase of the transition. It scored toward the bottom of the prioritization among both the Mode of Delivery functions, and the broader set of all HUD business functions. It has a low to medium potential for financial impact as it supports a very small number of offices, but has a high application count (e.g., 38 applications), offering high potential consolidation opportunities. It has a low to medium potential for business impact as it supports only a few HUD LOBs, and is not a key area of management or performance improvement efforts. To varying degrees, it is a prerequisite for the implementation of half of HUD's LOBs, with only one being a primary dependent.

3.4.13 Loan Insurance

Overview
The Loan Insurance LOB segment involves the provision of loan insurance for the financing and/or refinancing of property purchases, property improvements, manufactured housing, and community development projects. This primarily includes mortgage insurance for the purchase and/or rehabilitation of single family housing, rental housing, and health care facilities, as well as reverse equity mortgages.

Prioritization and Sequencing
Loan Insurance is targeted for initiation during the first phase of the transition. It scored in the medium range for prioritization compared to other Mode of Delivery functions, but scored slightly higher at the top of the middle range amongst all HUD business functions. It has medium to high potential for financial impact as it only supports a few but, very prominent mission centric offices, and medium application count (e.g., 34 applications), offering high potential consolidation opportunities. It has high potential for business impact as it supports two of HUD's most important LOBs (i.e., SFH and MFH), around which many of HUD's management and performance improvement efforts are being focused (e.g., improved oversight of partners such as lenders, appraisers, PHAs, etc). As such, the completion of its architecture is a prerequisite for the completion of the LOB implementations that it supports.

3.4.14 Market Research and Economic Analysis

Overview
The Market Research and Economic Analysis business function segment encompasses the processes, systems, and technologies that allow HUD to perform the research of housing markets, industry trends, community needs, demographics, legislation, policies, programs, and the economy. This information is analyzed in support of developing policies and programs that adequately address the changing needs of HUD's customers, amid changing socio economic conditions.

Prioritization and Sequencing
Market Research and Economic Analysis is targeted for initiation in the fifth phase of the transition. It scored in the lower third of the prioritization relative to the overall business function category. It has minimal potential for positive financial impact due to a moderate number of offices performing the function, low application count (e.g., 13 applications), and low resource availability. The function is not a required predecessor for other transition activities.

3.4.15 Planning and Resource Allocation

Overview

The Planning and Resource Allocation business function involves the processes, systems and technologies that enhance HUD's ability to determine its strategic direction, identify and establish its programs and processes, and allocate resources (capital and labor) among these programs and processes. Its specific sub functions* include Budget Formulation, Capital Planning, Enterprise Architecture (EA), Strategic Planning, Budget Execution, Workforce Planning, and Management Improvement. PRA is used in support of all HUD LOBs and is thus considered a cross-cutting business function.

Prioritization and Sequencing

Planning and Resource Allocation is projected for initiation in the first phase of the transition. It scored in the top third of the prioritization relative to the overall business function group. It has a high potential for positive financial impact due to the high application count (e.g., 37 applications) and potential for consolidation opportunities, potential availability of resources, and large number of offices performing the function. Furthermore, it has medium potential for business impact, as its sub functions EA, Capital Planning, and Strategic Planning are fundamental planning activities that help enable business transformation and help elevate its status as one of the initially architected cross-cutting business functions. It is not a required predecessor for other transition activities.

3.4.16 Public Affairs

Overview

The Public Affairs business function segment encompasses the processes, systems, and technologies that enable HUD to effectively communicate with and exchange information between its stakeholders, business partners, citizens, and other government entities in direct support of its programs, services, and policies. To optimally disseminate official HUD information, market its services, promote its brand, and garner customer feedback, the Department leverages all available media outlets, including video, print, and Internet, giving it a wide reach to an audience with otherwise limited information access. The key sub functions that constitute this business function are Customer Services, Official Information Dissemination, Product Outreach, and Public Relations. It is considered a cross-cutting business function in support of all HUD LOBs.

Prioritization and Sequencing

Public Affairs is projected to begin in the third phase of the transition. It scored in the middle range on the prioritization relative to the overall group of HUD business functions. It has a high potential for positive financial impact as it performed by nearly all HUD offices, has a high application count (e.g., 73 applications) presenting high potential for consolidation. However, it has low potential for business impact relative to other more mission critical functions. Public Affairs is not a predecessor for other transition activities.

3.4.17 Regulatory Development

Overview

The Regulatory Development business function segment encompasses the processes, systems, and technologies that allow HUD to perform activities associated with developing regulations, policies, and guidance to implement laws. Specific sub functions encompassed under this segment include Regulatory Creation, Rule Publication, Public Comment Tracking, and Policy and Guidance Development. Regulatory Development affects policy development for all major HUD programs and so supports all HUD strategic LOBs.

Prioritization and Sequencing

Regulatory Development is projected to begin during the fourth phase of the transition. It received the lowest score of the prioritization relative to the overall group of business functions. It is performed by a large number of offices, however there is a minimal number of applications (e.g., 11 applications) supporting the function. The potential financial impact is relatively low and it is not an area of focus of external reports or findings. The function is not a predecessor for other transition activities.

3.4.18 Revenue Collection

Overview

The Revenue Collection business function segment encompasses the processes, systems, and technologies that enable HUD to collect income from the sale of its external assets with commercial value to non-government, private sector entities. Specifically, within the Federal Asset Sales sub function, this business function equips HUD with capabilities to acquire, monitor, track, and sell its housing properties (e.g., land, multi-family buildings, and single family homes) to non-government entities. Other sub functions within this business function are Debt Collection, and User Fee Collection.

Prioritization and Sequencing
Revenue Collection is projected to begin in the fourth phase of the transition. It, along with a few other business functions, received the lowest score on the prioritization among all HUD business functions. It has a low potential for financial impact due to the limited number of applications (e.g., 4 applications) supporting this function and offices performing this function. This function is not a required predecessor for other activities.

3.4.19 Subsidies Management

Overview
The Subsidies Management business function segment encompasses the activities associated with the provision of vouchers and other types of subsidies to individuals and public housing bodies in support of rental assistance, housing modernization, and homeownership (i.e., tenant based and project-based vouchers, vouchers for rehabilitation, and vouchers for down payments and mortgages, respectively).

Prioritization and Sequencing
Subsidies Management is targeted for initiation within the second phase of the transition. It scored toward the bottom of the prioritization among both the Mode of Delivery functions, and the broader set of all HUD business functions. It has a medium potential for financial impact as it supports a very small number of HUD offices, and has a low application count (e.g., 10 applications) and minimal potential opportunities for consolidations. It has a medium potential for business impact as it supports only a few, but prominent HUD LOBs, and addresses programs needing to demonstrate performance improvement according to PART Assessments (e.g., voucher programs ranked as “Moderately Effective) and aligns with PMA efforts to eliminate erroneous rental assistance payments (e.g., tenant and project-based vouchers).

3.4.20 Supply Chain Management

Overview
The Supply Chain Management business function segment encompasses the processes, systems, and technologies that allow HUD to effectively manage the lifecycle (purchase, track, maintain, replace/retire, etc.) of the physical goods and contracted services it acquires in support of delivering its services and executing its programs. Paramount within this business function is the capability of HUD to manage the private sector contractors that perform much of HUD’s outsourced work. The sub functions that constitute this business function include Goods Acquisition, Inventory Control, Logistics

Management, and Services Acquisition. It is considered a cross-cutting business function that supports all HUD LOBs.

Prioritization and Sequencing
Supply Chain Management is projected for initiation in the third phase of the transition. It scored in the top half on the prioritization relative to the overall business function group. It presents moderate potential for financial impact due to the large number of offices performing this function, the low number of applications (e.g., 9 applications), and corresponding few consolidation opportunities. Acquisitions Management, and specifically HUD's deficient control and monitoring of contractor performance, has been cited by GAO reports as an area of concern and area of focus for much of HUD's PMA efforts.

3.5 CORE IT SERVICES

Core IT Services are service components or logically related groupings of service components, and associated technologies, with the potential to be shared across HUD. Several Core IT Services were identified during the compilation of the FY05 Strategic Portfolio Review (SPR). The analysis phase of the Transition Plan has revealed additional Core IT Services as well. As this Transition Plan is used, the intrinsic value of a Core IT Service may necessitate architecture and execution prior to the sequence and priority.

3.5.1 Asset Management

Overview
The Asset Management Core IT Service provides capabilities that allow HUD to effectively manage from acquisition to disposition both its financial and physical assets, such as insured, non-insured assisted, HUD-held notes (e.g., insured mortgages) and property (e.g., HUD owned multifamily housing projects), respectively. These capabilities allow HUD to emphasize default prevention techniques and minimize monetary losses.

Prioritization and Sequencing
Asset Management is projected for initiation in the first phase of the transition. Though it scored in the lower third on the prioritization relative to the overall Core IT Service group, its status is elevated, as it is one of five Core IT Services recommended for development per HUD's SPR. Other factors bringing it to the forefront and contributing to its high potential for positive business impact include its role in providing SFH and MFHF with the ability to track and monitor financial and physical assets such as insured

loans and HUD properties, and opportunities to demonstrate early successes with the architecture and implementation efforts of these two LOBs. Finally, Asset Management may have potential to leverage the common services and capabilities of the Federal Asset Sales (G2B) E-Gov initiative.

3.5.2 Business Partner Management

Overview
The Business Partner Management Core IT Service provides HUD programs with capabilities to more effectively exchange information with their numerous downstream business partners, as well as maintain and use that information to improve the performance management, control, and oversight of these partners.

Prioritization and Sequencing
Business Partner Management is projected for initiation in the second phase of the transition. It scored in the middle range of the prioritization relative to the overall Core IT Service category. However, it presents a very high potential for positive business and financial impact due to its direct alignment with GAO audit reports citing insufficient communication with, and control and monitoring of business partners, as a key area of concern. Improved partner monitoring results in: cost avoidance and decreased exposure to financial risk/loss- risk of subsidy overpayments, fraudulent payment, and partnerships with poor performing contractors. In addition this service has a large number of application alignments which may yield consolidation and cost-savings opportunities. Finally, the requirements defined during architecture efforts of the Business Participant Management business function feed the architecture for Business Partner Management.

3.5.3 Decision Support/Business Intelligence

Overview
The Decision Support/Business Intelligence Core IT Service supports HUD's decision making capabilities, and in particular its research function. It encompasses an integrated set of business analytical, data management, knowledge management, business intelligence, and reporting services.

Prioritization and Sequencing
Decision Support/Business Intelligence is projected for initiation in the fifth phase of the transition. It scored in the lower third of the prioritization relative to the overall Core IT Service category. While it has high potential for positive financial impact by providing analytical tools for improved decision making (e.g., avoid investment of time and resources in poor

performing programs), it has moderate potential for business impact, as it is not a current SPR recommendation. It is not a predecessor for other transition activities. Rather, it is highly dependent on an underlying data infrastructure. Therefore, the Integrated Enterprise Data Management core IT service is a predecessor for Decision Support/Business Intelligence.

3.5.4 Electronic Document and Records Management

Overview
The Enterprise Electronic Document and Records Management Core IT Service enables HUD to effectively manage all of its documents and records in a consistent, legal, and logical manner, from creation to final disposition, using a common set of tools, standards and policies. Considering that the objective of Document Management is to promote collaboration and sharing, and that much of HUD's knowledge is captured in digital format, this Core IT Service integrates with the Knowledge Management/Collaboration Core IT Service.

Prioritization and Sequencing
Electronic Document and Records Management is projected for initiation in the first phase of the transition. It scored in the upper third of the prioritization relative to the overall Core IT Service category. It has high potential for both positive business and financial impact, enabling improved execution of mission, especially enhanced partner and inter-agency communications through digitization of HUD knowledge, automation of manual processes, and elimination of paper handling costs. This service complies with the SPR recommendations and assists in meeting legislative demands (e.g., National Archives and Records Administration (NARA) requirements for proper records disposal).

3.5.5 Geospatial Data Management and Analysis

Overview
The Enterprise Geospatial Data Management and Analysis Core IT Service integrates geospatial and geographic information services with data management and analytical capabilities to provide users with the ability to capture, view, and analyze programmatic information based on location and associated characteristics.

Prioritization and Sequencing
Geospatial Data Management and Analysis is projected for initiation in the fifth phase of the transition. It scored in the lower third on the prioritization relative to the overall Core IT Service category. It has moderate potential

for positive business and financial impact through consolidation due to the low number of application alignments and potential resource availability. Though there is moderate potential for overall improved efficiency and productivity, it encompasses a highly technical and complex capability. Therefore, leveraging COTS/GOTS would be encouraged over custom development. This service may provide opportunities with consolidation of disparate data sources. It does not align to any SPR recommendations for Core IT Services.

3.5.6 Identity Management

Overview

Identity Management provides the capabilities that establish an enterprise directory service for centrally administered identity management of HUD users. Storage of user information in a single authoritative source (i.e., enterprise directory service), and role-based security, which grants access privileges based on roles, rather than individual identities, together lower administrative costs via reduced time and complexity. Also included is a single sign-on feature that enables access to all appropriately available HUD resources- information, networks, applications, services- via a one-time system login (i.e., one username, one password).

Prioritization and Sequencing

Identity Management is projected for initiation in the second phase of the transition. It received the second highest score in the prioritization. It has high potential for positive financial impact due to: improved security; end-user efficiency and convenience; streamlined business processes; and reduced administrative costs from centralized identity and access management. This service has been identified as a quick win due to its relative ease of implementation and can possibly provide added support capabilities to other Core IT Services.

3.5.7 Integrated Enterprise Data Management

Overview

The Integrated Enterprise Data Management Core IT Service allows open access to HUD's information based on consistently applied data definitions and data access control. This Core IT Service moves HUD from application-specific or "silo" data to data maintained independently from applications. The service provides mechanisms for transforming transactional data into a data warehouse configuration with subject-oriented data marts based on user reporting and research requirements, giving users quick and accurate

research and report capabilities using data sets pulled from numerous data sources.

Prioritization and Sequencing
Integrated Enterprise Data Management is projected for initiation in the second phase of the transition. It received the second highest score in the prioritization. It has high potential for positive financial impact due to the high opportunity for consolidation of disparate data sources that exist across HUD. As it provides the underlying data infrastructure for all HUD applications, there is a high potential for cost-avoidance and downstream savings as all systems leverage a common, standardized data backbone. In addition, it demonstrates high potential for business impact as it helps improve data collection, quality, and standardization within and across HUD's value chain (e.g., within enforcement process in Fair Housing), which addresses GAO report findings.

3.5.8 Knowledge Management/Collaboration

Overview
The Knowledge Management/Collaboration Core IT Service employs processes and tools to capture and make available enterprise-wide intellectual capital, including both tangible knowledge in the form of documents and intangible experiential knowledge. It promotes information sharing and collaboration within HUD and with external partners and stakeholders. For example, participation in Communities of Practice, where content is aggregated around common interests, promotes collaboration and knowledge sharing both within HUD and across the Federal Government.

Prioritization and Sequencing
Knowledge Management/Collaboration is projected for initiation in the third phase of the transition. It scored in the middle range of the prioritization relative to the overall Core IT Service category. It has high potential for positive financial impact due to the potential for improved efficiency in leveraging existing materials and best practices, and moderate potential for resource availability. The business impact potential is very high primarily because of the paramount need for HUD to share/exchange/preserve experiential knowledge in light of the imminent retirement of a large percentage of its seasoned staff. In addition, the business implications also include improved information sharing and collaboration between HUD and its offices as a means to improve performance and program execution, as cited in GAO audit reports. Finally, as much of the Department's knowledge is captured in paper or digital documents, this service is dependent upon the

implementation of the Enterprise Electronic Document and Records Management Core IT Service.

3.5.9 Portal

Overview

The Portal Core IT Service includes the capabilities that will allow HUD business partners, citizens, and internal users the ability to conveniently and efficiently interact with HUD via a single electronic interface. Users will access HUD information through a common "look and feel" gateway, but with options to customize displays with information and graphics dictated by personal preferences. Features realized through the service include: links to applications and services; user/role-based searching (integration with Identity Management core IT service); targeted news and information regarding Department, office, role, and/or external sources; and improved and centralized channel for communication and collaboration with stakeholders.

Prioritization and Sequencing

Portal is projected for initiation in the second phase of the transition. It scored near the top on the prioritization relative to the overall Core IT Service category. It has high potential for positive financial impact due to the potential for improved productivity and reduced administrative costs through citizen, partner, and employee self-service. The business impact potential is also high due to the potential for improved accessibility, essentially a single access point to HUD information and services. Portal could be a “quick win” through the acquisition of a COTS solution, used to build rich “push” capabilities for user-based dashboards.

3.5.10 Reporting

Overview

A Reporting Core IT Service encompasses cross-cutting service components related to organizing and presenting data as useful, relevant information. This includes ad hoc, canned, and OLAP reporting capabilities.

Prioritization and Sequencing

Reporting is projected for initiation in the first phase of the transition. Though it scored in the middle range on the prioritization relative to the overall Core IT Service category, its status is elevated, as it is one of five Core IT Services recommended for development per HUD’s SPR. In addition, it has high potential for positive financial impact due to the large number of applications and program offices aligning to and performing this capability,

providing ample potential system and process consolidation opportunities, respectively. The business impact potential is also high due to this service's alignment with GAO audit findings regarding communications with partners and citizens. Reporting should demand lower architecture and implementation resources, relative to other transition activities, due to the prevalence of existing COTS reporting platforms both at HUD and the marketplace.

3.5.11 Survey

Overview
The Survey Core IT Service provides capabilities that allow HUD to collect useful information from its customers, driving feedback and customer analytics processes.

Prioritization and Sequencing
Survey is projected for initiation in the first phase of the transition. Though it scored in the lower third range on the prioritization relative to the overall Core IT Service category, its status is elevated as it responds to a specific SPR recommendation. It has low potential for positive financial impact due to the small number of applications that are aligned to it, and limited number of offices performing it. However, the business impact potential is high, as it responds to GAO audit findings regarding need for improved communications with, and data collection from, partners and citizens. Finally, Survey should require limited architecture and implementation resources, as many COTS solutions exist to support this service. Therefore it is considered a "quick win" for improving partner, citizen, and Department communications and feedback processes.

3.5.12 Tracking and Workflow

Overview
The Tracking and Workflow Core IT Service provides a set of capabilities that enables automatic monitoring and routing of documents to the users responsible for working on them, supporting each step of the business cycle.

Prioritization and Sequencing
Tracking and Workflow is projected for initiation in the first phase of the transition. It scored highest on the prioritization relative to the overall Core IT Service category. It has high potential for positive financial impact due to the large number of applications (e.g., 69) and program offices supporting and performing this capability, and the high degree of involvement these offices have in case management and document hand-off. The business

impact potential is also high as it responds to GAO findings citing improved monitoring and control of business partners as a key HUD management challenge, and aligns with SPR recommendations. Finally, its business implications also include its high degree of alignment to both Grants Management and Controls & Oversight, two of HUD's high priority business function segments.

4 TRANSITION STRATEGIES

4.1 INTRODUCTION

IT modernization is a large, complex effort that represents a significant paradigm shift in the way HUD architects, invests in, plans for, develops, and implements enabling IT in support of its business. The EA Transition Plan, which is detailed in Sections 2 and 3, identifies and sequences the specific activities HUD will accomplish to achieve the Target EA. However, there are many broader strategic and tactical considerations that should be addressed for successful execution of the EATP. The purpose of this section is to introduce these strategic issues as points of consideration for HUD decision-makers and recommend some general strategies for addressing them.

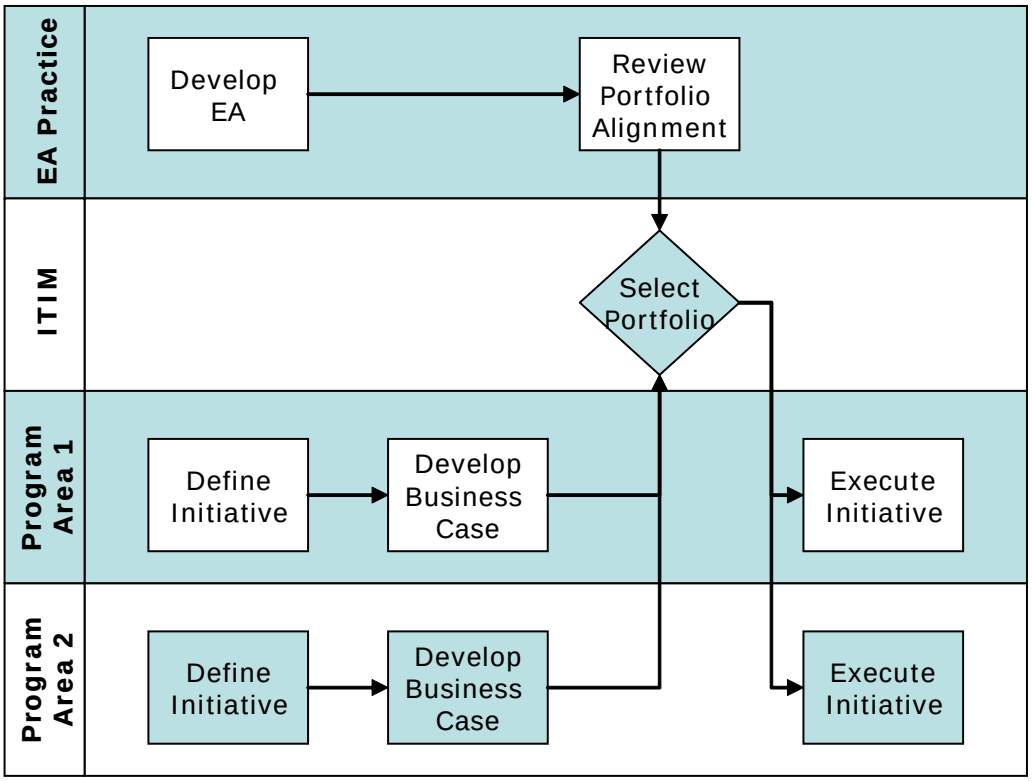
4.2 INVESTMENT

The transition toward the Target EA requires a re-evaluation and possibly revision of the model for how IT activities (programs, projects, and initiatives) are funded. Over the past five years, HUD has responded to legislative changes and built a mature and highly successful IT Investment Management (ITIM) practice. However, the emphasis in this EATP on IT activities that are pursued jointly by multiple program areas and, in some cases, the entire enterprise, means that the flow of initiatives through the ITIM selection process could change.

Portfolio Selection Process
The ITIM processes at HUD have focused on reviewing and funding individual IT initiatives as part of an enterprise portfolio of IT investments. While this model has taken HUD a long way toward scrutinizing individual investments in the context of a broader set of enterprise priorities, it has not yet moved HUD toward fulfillment of the “architecture drives investment” principle. It also does not adequately define an appropriate model for investments that involve multiple program areas.

Exhibit 4-1 below presents a simple conceptual depiction of how IT initiatives are currently defined and moved through the ITIM selection process to execution. This is not intended to be a graphic representation of the ITIM Select process itself, but rather an illustration of the flow of initiatives into and out of the process intended to highlight several tactical issues.

Exhibit 4-1 – Current IT Portfolio Selection Process

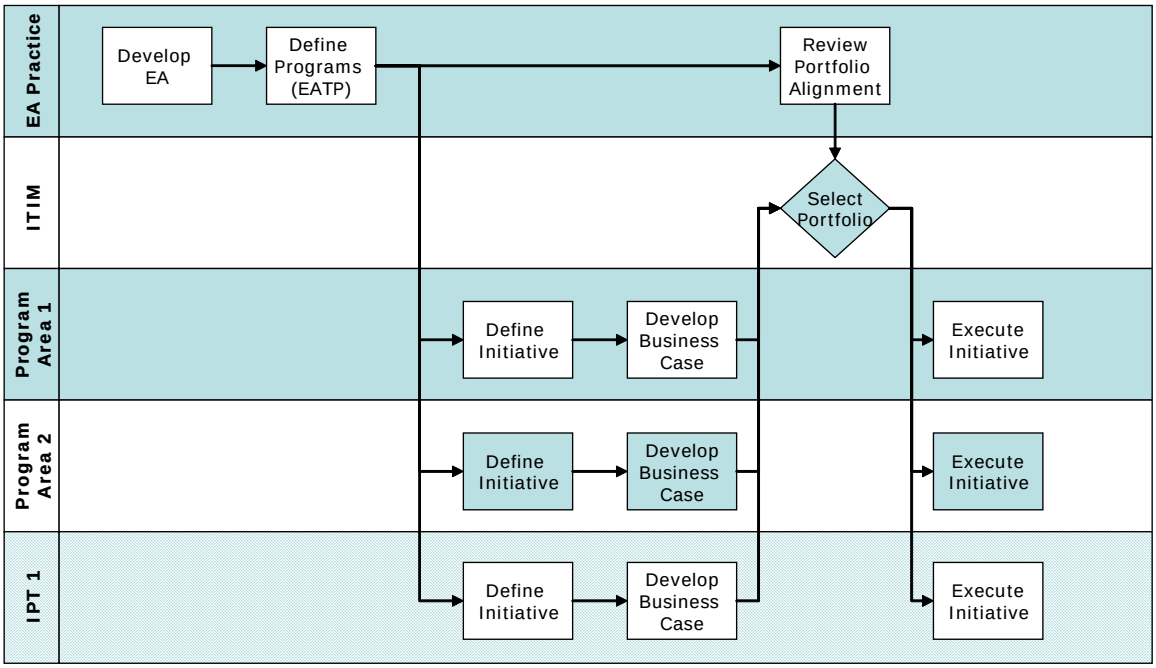


This illustration highlights two key limitations of the current process:

1. EA development is going on in parallel with, rather than prior to, the definition of IT initiatives. Individual program areas are defining initiatives based on their unique program needs, with little or no consideration of a broader Department-wide business and IT vision. EA is being brought into consideration after the fact to determine whether the initiatives defined in isolation make sense in the broader context of the EA (i.e. alignment).
2. In this model, there is no clear mechanism for enterprise-wide IT initiatives to be defined and funded.

Exhibit 4-2 below attempts to address these limitations with a conceptual depiction of how IT initiatives could be defined and moved through the ITIM selection process in support of the IT modernization. Again, this is not intended to be a graphic representation of the ITIM Select process itself, but rather an illustration of the flow of initiatives into and out of the process.

Exhibit 4-2 – Future IT Portfolio Selection Process



In this conceptual model, the Target EA and EATP drive the definition of "programs," which in turn lead to the definition of initiatives. An IT program, in this context, is a logical grouping of IT activities focused around a common set of business objectives. A program could consist of one or more initiatives, funded through the ITIM process. For example, programs could be established for the development and implementation of segment architectures or Core IT Services. This presents an opportunity to consolidate business cases.

In this model, current program area-specific initiatives that clearly fit within the Target EA and EATP may continue to independently develop business cases for those initiatives. Other current initiatives may be bundled into programs to be addressed by an Integrated Program Team (IPT) consisting of multiple program areas. Through the planning of the IPT, the portfolio of individual initiatives may change. For example, certain current initiatives may be phased out, while other new initiatives may be defined.

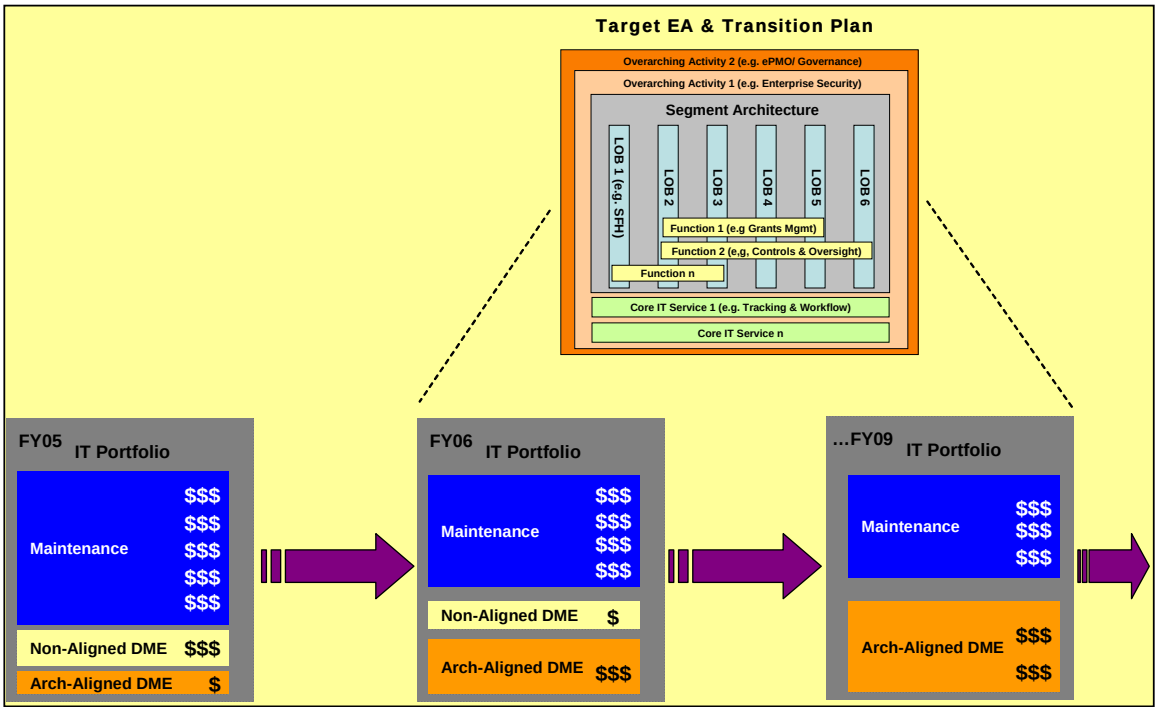
Funding Allocation

HUD's FY 2005-2006 IT portfolio is comprised largely of steady state initiatives, with 80% of the portfolio in the post-execution phase of the System Development Life Cycle (SDLC). The post-execution phase includes maintenance and operations to sustain current system capabilities and

performance. Implicit in HUD's drive toward IT modernization is a near-term increase in development, modernization, and enhancement (DME) spending to build modular, re-usable components. As depicted in Exhibit 4-3 below, this increase should naturally be off-set in two areas:

- Decrease in maintenance spending, due to phased retirement of legacy systems that are not aligned with the Target EA
- Shifting of DME spending that is not aligned with the Target EA toward DME spending driven by the Target EA and EATP

Exhibit 4-3 – Shifting Resource Allocation



Funding Enterprise-Wide Initiatives[2]

The Target EA and this EATP identify many transition activities that will bring together multiple program areas in joint enterprise-wide efforts. The current funding model poses some challenges in obtaining funds for enterprise-wide initiatives. IT initiatives at HUD are currently funded via the Working Capital Fund (WCF) from two sources:

- **Direct Appropriation** – Funds the HITS infrastructure contract, system/application maintenance, IT management initiatives, and system application development for organizations such as the OCFO and OCIO
- **Program Transfer Funds** – Comprised of funds contributed by CPD, FHA (Housing), and PIH program offices

Currently, program transfer funds are used exclusively for development of systems and applications for the contributing program office(s). Meanwhile, there are insufficient direct appropriation funds available to implement many of HUD's enterprise-wide initiatives. However, the FY 2005 budget appropriations language permits more widespread use of program transfer funds.

As displayed in Exhibit 4-4, HUD should align program transfer funds to increase the availability of funding for enterprise-wide services. Using program transfer funds to pay for enterprise-wide services leverages economies of scale, promotes Departmental collaboration, and is consistent with OMB's FY 2006 Passback which recommended that HUD should

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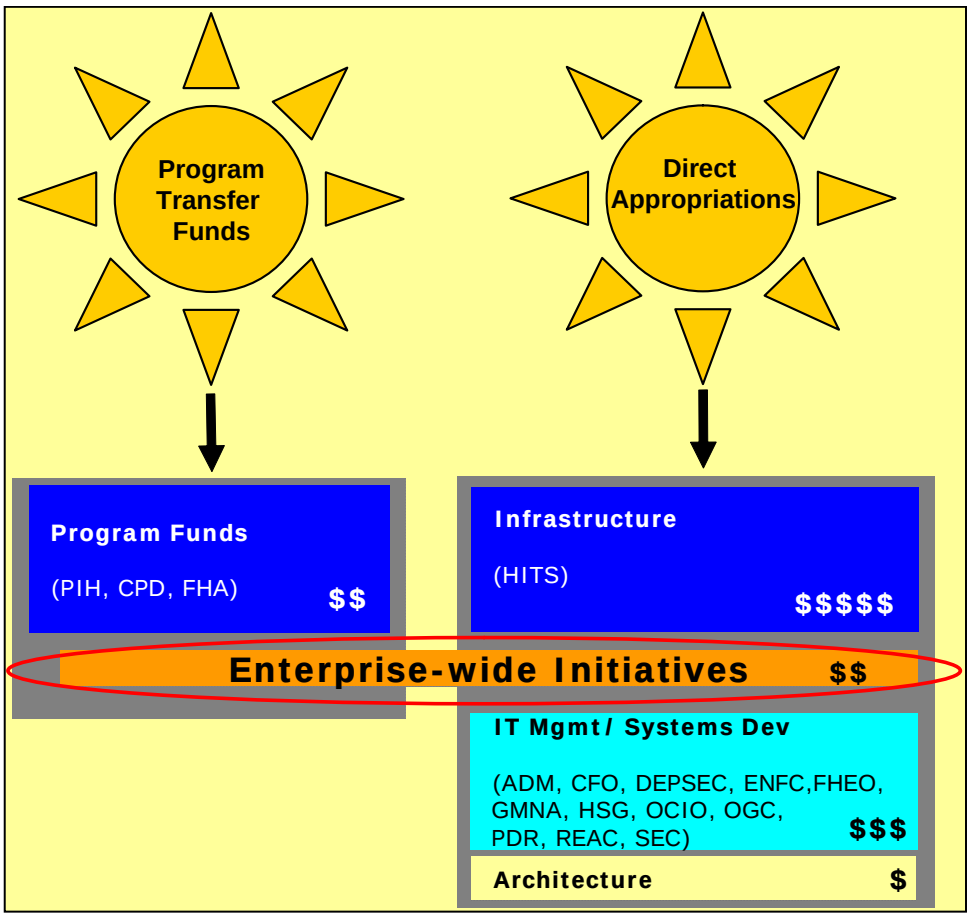
[2] *A more detailed discussion of this issue and set of recommendations is contained in HUD's IT Strategic Portfolio Review, March 18, 2005*

"centralize" funding and decisions for services supporting multiple LOBs. The Strategic Portfolio Review details three alternative approaches to directing program transfer funds: Upfront Contribution, Line of Business Contribution, and Contract-Driven Contribution. HUD leadership should consider these alternative approaches, and select and implement the preferred approach.

Exhibit 4-4 – Funding Enterprise-Wide Initiatives



4.3 IMPLEMENTATION

As described in the section above, the focus of HUD's IT modernization on shared, re-usable enterprise services means that the transition activities described in Sections 2 and 3 of this EATP (i.e. segment architectures and Core IT Services) will often be architected and implemented by IPTs with staff from multiple program areas. These IPTs will support the execution of the "programs," as defined previously, which encompass one or more

initiatives. This model for architecting, developing, and implementing solutions differs from HUD's traditional systems development models on several dimensions, as described below.

Program Participation

The IPTs will consist of staff from across program areas, with both business and IT backgrounds. The IPTs will be led by a program manager capable of managing multiple large scale initiatives. In addition, a segment architect from the EA Practice will participate with each IPT to ensure that architectural principles are followed and that there is architectural alignment across programs. Contractor support will be applied as needed throughout implementation. The nature of program participation raises several key issues to be addressed by decision-makers:

- **Enterprise Program and Project Management** – The scope of effort for these enterprise IPTs requires skilled program and project management. Because the EATP requires numerous enterprise programs to run in parallel over an extended period of time, HUD should establish a single organizational body to coordinate these efforts. This notion was discussed in more detail in Section 3.2.2.

- **Staffing the IPTs** – HUD will need to ensure that the right workforce is in place to plan and execute the programs defined in this EATP. HUD will need to determine appropriate procedures for assigning staff from participating program areas, determining appropriate levels of participation, and determining responsibilities within the team. One specific challenge to be addressed is that the number of segment architects available within the EA Practice to support the transition activities is extremely limited. In order to maintain the plan detailed in Sections 2 and 3, HUD should consider increasing the number of segment architects.

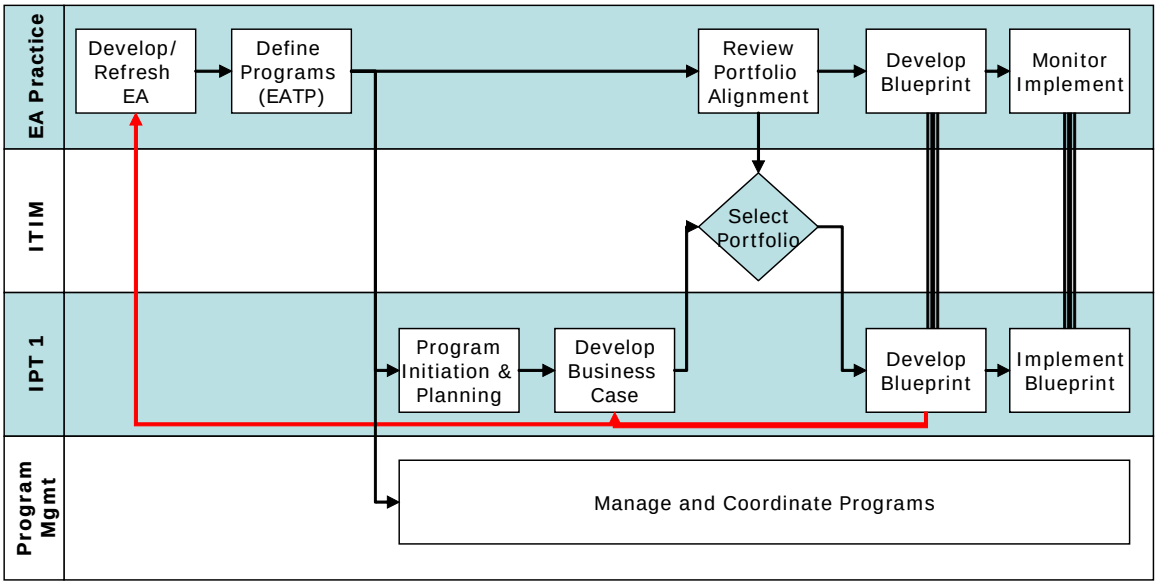
- **Segment Architecture Methodology** – In order to ensure that HUD staff and contractor resources supporting these efforts are operating within a common set of guidelines, HUD should develop and propagate documentation of standard practices, procedures, and work product definitions or templates. Both HUD staff and contractors will need to be educated in these practices.

- **IT Lifecycle Policies and Governance** – HUD will need to update existing or establish new IT policies and governance to ensure that mechanisms are in place to support a focus on collaboration across program areas. This notion was discussed in more detail in Section 3.2.1.

Program Execution Scope and Processes

Unlike traditional systems development IPTs, the teams addressing transition activities will often focus as much on business as on IT issues. Exhibit 4-5 below presents a simple conceptual depiction of how IT programs will be initiated, selected, and executed.

Exhibit 4-5 – Program Execution



As depicted in the graphic, programs are defined within the Target EA and EATP. Once a program is defined and is in line for initiation based on the EATP sequencing, an IPT forms for initiation and planning. During initiation and planning, the IPT will scope program activities and develops a business case. In addition to developing a business case, the IPT should assess the funding of participating initiatives to determine if there is funding available to be re-directed toward program objectives. This could alleviate the delay of the budget cycle and allow blueprint development to proceed more quickly.

Once funding is available, the IPT and segment architect from the EA Practice develop a blueprint (i.e. architecture). Each blueprint encompasses a business profile, architectural profile mapping, system profile, and implementation plan. Following the creation and approval of the blueprint, the blueprint is reconciled with and incorporated into the Target EA. The EATP is updated accordingly. The development of the blueprint also feeds back to the development (or refinement) of the business case. Depending

on the scope of implementation activities defined in the blueprint, the existing business case may be updated for the following ITIM Select cycle, or new business cases may need to be developed for one or more initiatives within the program.

For purposes of the graphic, the "Implement Blueprint" activity was simplified. The implementation of the blueprint will involve a single IPT, but possibly multiple project teams.

4.4 INFRASTRUCTURE

The recent award of the HUD Information Technology Services (HITS) contract raises a number of issues that HUD will need to address as it begins to transition to the Target EA. Architecture should drive decisions about infrastructure. Therefore, HUD should better delineate the roles and responsibilities of the EA practice, HITS, program IPTs, and others in infrastructure selection, implementation, and maintenance.

5 NEXT STEPS

The EATP identifies a strategy and sequence of activities for moving toward the IT modernization vision, but this will require many changes to HUD's culture and ways of doing business. The strategy must be embraced and adopted Department-wide for the EATP to be executed successfully. Furthermore, the EATP and the Target HUD EA must evolve to accurately reflect new and changing influences, such as: goals and objectives; business drivers; compliance with rules, regulations, policies and procedures; and emerging technologies. The following sections detail the immediate and necessary actions and processes that HUD must undertake to ensure the proper and successful execution of the EATP and realization of the Target EA.

5.1 SEEK DEPARTMENT-WIDE ADOPTION OF EATP

The EA Practice Team will provide the draft EATP to the TIBWG for dissemination to program areas for review and comment. The EA Practice Team will incorporate comments and revise the EATP document. Lastly, the TIBEC should review and approve the EATP. Once approved by the TIBEC, the EATP should be leveraged immediately to provide strategic direction to the ITIM process, to support the re-allocation of resources for architecture development and implementation, and to begin near-term transition activities, as described in Sections 2 and 3.

5.2 ADDRESS GOVERNANCE AND MANAGEMENT ISSUES

Critical to the success of HUD's business transformation and IT modernization is the incarnation of cohesive planning, monitoring, management, and governance strategies. The overarching transition activities, detailed in Sections 2 and 3, encompass the actions necessary to address the governance and management issues HUD increasingly faces as it drives toward its target architecture.

The IT Lifecycle Governance and Enterprise Program Management Office (EPMO) overarching activities of the EATP initiate review and revision of existing governance and management processes. The evolution of these processes will enable more effective execution of other transition activities and result in optimized management of resources.

A major focus for early governance, policy, and process efforts should be the continued integration of EA and ITIM processes and the re-evaluation of the funding structure for the enterprise-wide IT modernization effort.

Integration efforts to date have been responsive, focused on evaluating the IT portfolio from an EA perspective only after initiatives have already been defined and proposed by the program areas. HUD must move to a more proactive process whereby the Target EA, EATP, and segment architecture blueprints themselves define and drive initiatives. This will require culture change that will only be possible with clear and enforceable policies and procedures in place. In addition, each transition activity represents a program that encompasses many current initiatives. HUD should strive to consolidate existing initiatives so that each transition activity is managed as a single program which in turn is funded as a single initiative.

Establishing the EPMO is another critical first step in successfully launching the IT modernization. HUD should quickly begin a small scale effort, leveraging the work done to date by the EA Practice, to:

- Evaluate best practice examples of how other agencies or businesses have applied the EPMO concept
- Draft a charter and functional statement of responsibilities for the office
- Scope initial resources needed to "stand up" an initial EPMO capability
- Assign staff and contract resources to the office

5.3 PLAN AND INVEST IN INITIAL TRANSITION ACTIVITIES

The EATP guides the commencement of several, critical transition activities in Phase 1. These transition activities will require immediate planning and investment in order to guarantee their successful initiation. Therefore, IPTs, including segment architect(s), must be identified and deployed to support these initiation and planning efforts, scoping of transition activities, and integrated business case development. The following list summarizes the required near-term steps:

- Form IPTs
- Determine if individual initiative funding can be re-directed for segment architecture (blueprint) development
- Initiate architecture development
- Develop business cases

5.4 EVOLVE THE TARGET EA AND EATP

This Transition Plan is only the first iteration of HUD's business transformation and IT modernization strategy. Updates to the Transition Plan will be necessary. Future versions of the EATP should account for:

- Completion of transition activities
- Identification of new transition activities
- Changes to the HUD Target EA, such as addition of a data architecture, and performance architecture
- Environmental changes that warrant re-prioritizing and re-sequencing transition activities, such as PMA or GAO reports/findings, ITIM Select and Control cycles, and SPR recommendations
- New architectural information such as data architecture, performance architecture, and business rules (within segments)

As segment architectures are developed and implemented, the sequencing of transition activities may require adjustment. Since segment architecture implementation plans are not identifiable or measurable at the onset, the ability to determine dependencies among the transition activities is limited. The Transition Plan should be updated as new information becomes available.

5.5 EXPAND INFORMATION SUPPORTING EA ANALYSIS

In the development of this first version of the EATP, it is apparent that there are several areas where additional data could improve the underlying analysis and consequently the quality and usefulness of this plan. HUD should explore opportunities to collect and maintain the following types of data, where practical, to improve the EA development and maintenance, transition planning, segment architecture development and maintenance, portfolio management, and other tasks:

- **Business x Application Relationships** – Currently, HUD's EA includes a mapping of applications to business functions. However, this information can be improved in several ways:
  - Initiate and enforce business function mappings to each application. Currently, mappings are derived from initiative x business function

mappings provided by project managers. In other words, all applications within a given initiative are mapped to any business functions that the initiative is mapped to as a whole. Many applications within a specific initiative may focus narrowly on a single function, while other applications supporting the initiative may support other functions.
Recommendation: Require project managers to map each application within their initiative to the HUD BRM.

– Account for the strength of relationship or degree to which the application is a technology enabler of the business function's operations.
Recommendation: Require project managers to specify strength of relationship between each application and business function as low, medium or high.

- **Application x Service Component Relationships** – Currently, HUD's EA includes a mapping of HUD SRM service components to applications. However, this information can be improved in several ways:

  – Initiate and enforce service component mappings to each application. Currently, mappings are derived from initiative x service component mappings provided by project managers. However, the EA team has supplemented these mappings based on other limited descriptive information available about the applications.
  Recommendation: Require project managers to validate the EA team's mappings of application x service component for each application within their initiative.

  – Account for the strength of relationship or extent to which the service component constitutes a significant capability of the application.
  Recommendation: Require project managers to specify strength of relationship between each application and related service components as low, medium or high.

- **Application Funding Levels** – Currently, all funding reported through HUD's ITIM process is tracked at the initiative level. Because multiple applications are associated with many of the initiatives, it is not possible to determine how much money is being invested in DME versus maintenance for a single application.

Recommendation: Require project managers to report investment levels by application.

All of the additional "data-calls" described above may best be accomplished within segment architecture efforts. The segment architecture blueprint process commands a deep understanding of business and technical processes, activities, and automation, which lends favorably to extracting this information.